

<https://doi.org/10.5852/ejt.2024.933.2525.11333>

Supplementary file S2: Computer generated descriptions (from Xper2) of all species included in the character matrix. Question marks indicate unknown characters, but were also used for absent characters that have no neomorphic character statement (see methods).

*Aganaster gregarius*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
A-DP-11: Accessory dorsal arm plates: absent  
A-DP-2: DAPs per segment, number: single  
A-DP-3: Proximal DAP series, position: separated  
A-DP-4: Proximal DAPs, shape: fan-shaped  
A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
A-G-2: Integument of arms structure: naked  
A-G-3: Arms shape: simple  
A-S-10: Hook-shaped arm spines, position: ?  
A-S-11: Hook-shaped spines shape: ?  
A-S-13: Arm spines, size pattern: median spine(s) longest  
A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
A-S-1: Arm spine position : lateral  
A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
A-S-3: Longest spine, length: shorter than half a segment  
A-S-4: Arm spine interior structure : ?  
A-S-5: Arm spine surface ornamentation: smooth  
A-S-7: Arm spine, cross section shape: round  
A-S-8: Tip of arm spines shape: blunt  
A-TS-3: Tentacle scales, shape: operculiform/round to oval  
A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
A-TS-6: Tentacle scale placement : ?  
A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
A-V-7: Needle-like thorns in dorsal groove : absent  
A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
AB-GP-11: Longitudinal groove in abradial surface: absent  
AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
AB-GP-13: Abradial GP crosses adradial GP : ?  
AB-GP-1: Abradial genital plate relative length : ?  
AB-GP-2: Abradial genital plate shape : ?  
AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?  
AB-GP-6: Abradial genital plate covering : ?  
AB-GP-7: AbGP plate papillae/granules, nature: ?  
AB-GP-8: AbGP papillae, extension: ?  
AB-GP-9: Ventral genital papillae, shape : ?  
AD-GP-1: Adradial GP shape : cleaver-shaped  
AD-GP-2: AdGP to RS articular structures, shape : 2 condyles, single condyle  
AD-GP-3: Bar-like adGP subtypes, shape : not possible  
AD-GP-4: Additional structures on adGP, shape : ?  
D-GS-1: Dorsal disc covering, nature: without granules/spines  
D-GS-2: Dorsal disc granules/spines extension : not possible

D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : few thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: entire  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: denticulate  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
 LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
 LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : vertical mouth-shaped, sharply defined elevation  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: oblique  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: slender  
 LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
 LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge

LAP-SA-6: Spine art. size : all similar  
 LAP-SA-7: Spine articulations, distance: equidistant  
 LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: within-plate perforation  
 LAP-TP-2: Tentacle notch, direction: ventralwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : yes  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: ?  
 M-DP-7: Tooth sockets, depth: ?  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-Pa-T-10: Second degree adoral shield spine, number: ?  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: ?  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: ?  
 M-Pa-T-3: Buccal scale, shape: ?  
 M-Pa-T-4: infradental papillae, position: ?  
 M-Pa-T-5: Adoral shield spine shape : ?  
 M-Pa-T-6: Second degree ASS, position: ?  
 M-Pa-T-7: Additional lateral papillae, shape: ?  
 M-Pa-T-8: Teeth, shape: ?  
 M-Pa-T-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : ?  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

#### *Acrocnida brachiata*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible

A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: between half a segment and one segment  
 A-S-4: Arm spine interior structure : with lumen  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: flat, elongated  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphenes fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: concave or incised  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisures/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: present  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : ?  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : scalene triangular  
 D-RS-6: Radial shield abradial edge shape : with extension(s) (regular outline enlarged)  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed

D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : yes  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
 LAP-I-3: Ridge on inner side of LAP, shape: not possible  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
 LAP-I-6: Ridge on inner side of LAP, shape: not possible  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: with a knob  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : simply separated  
 LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)  
 LAP-SA-15: Dorsal and ventral lobes, shape: straight  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : ventralwards increasing  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : dorsal half widest  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : larger than remaining oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides

M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: rib-like branching structures  
 M-OP-4: Adradial muscle attachment area position: with large, dorsal, spoon-shaped depression  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: pointed wide, higher on oral plate (Amphiura)  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: larger than other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : flat  
 VI-2: Ventral interradii, covering : with tubercles  
 VI-3: Genital slit length : shorter than half interradius

=====

*Actinozonella texturata*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: present  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : ?  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation

A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : strong, curved scale  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : stout, half as wide as long  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : thick scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : with smooth tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : scalene triangular  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent

LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP

LAP-O-8: Outer surface, structure: normal stereom

LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : simply separated

LAP-SA-13: Dorsal and ventral lobe size : equal-sized

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. *Amphiura*)

LAP-SA-15: Dorsal and ventral lobes, shape: straight

LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive

LAP-SA-17: Lobes, orientation on plate: nearly horizontal

LAP-SA-19: Sigmoidal fold, expression: ?

LAP-SA-1: Spine articulations, position: on same level as remaining outer surface

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP

LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge

LAP-SA-6: Spine art. size : all similar

LAP-SA-7: Spine articulations, distance: equidistant

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: smaller than muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : no

M-DP-1: Dental plate : entire

M-DP-2: Dental plate geometry : dorsal half widest

M-DP-3: Tooth sockets, pattern: single column throughout

M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges

M-DP-7: Tooth sockets, depth: depression or perforating DP without septum

M-OAS-1: Oral shield length : covering less than one third of interradius

M-OAS-2: Oral shield shape : as long as wide

M-OAS-3: Madreporite size : similar to other oral shields

M-OAS-4: Madreporite inner side, structure: ?

M-OAS-5: Madreporite inner opening, position: ?

M-OAS-6: Adoral shields proximity: meeting proximal to oral shield

M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides

M-OAS-9: Oral shield distal portion shape : evenly convex

M-OP-1: Oral plate shape : longer than high

M-OP-2: Abradial muscle fossa shape: central depression

M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining more than two thirds of adradial articulation area

M-Pa-T-12: Tooth papillae, number: ?

M-PaT-10: Second degree adoral shield spine, number: single

M-PaT-11: Lyman's ossicle, position: in line with other papillae

M-PaT-13: Accessory oral papillae: absent

M-PaT-1: Lateral papillae, arrangement: single row along jaw edge

M-PaT-2: Ventralmost tooth, position: exposed

M-PaT-3: Buccal scale, shape: single, wide papilla (*Amphilepis*)

M-PaT-4: infradental papillae, position: lateral, close to dental plate

M-PaT-5: Adoral shield spine shape : scale-like or like other papillae



M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : shorter than half interradius

=====

*Amphilepis norvegica*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: oval semi-circular  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: ?  
 A-TS-4: Tentacle scales, size: ?  
 A-TS-5: Tentacle scales ornamentation : ?  
 A-TS-6: Tentacle scale placement : ?  
 A-V-1: Dorsal-distal muscular fossae, distalwards projection: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped

AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : scalene triangular  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
 LAP-I-3: Ridge on inner side of LAP, shape: not possible  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
 LAP-I-6: Ridge on inner side of LAP, shape: not possible  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: simple  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
 LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiuira)  
 LAP-SA-15: Dorsal and ventral lobes, shape: straight

LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by a thin projection of the distal LAP portion (e.g. Ophiomyces)  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : ventralwards increasing  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madrepomite size : larger than remaining oral shields  
 M-OAS-4: Madrepomite inner side, structure: 1–2 openings  
 M-OAS-5: Madrepomite inner opening, position: central  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-Pa-T-10: Second degree adoral shield spine, number: ?  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: absent  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: exposed  
 M-Pa-T-3: Buccal scale, shape: ?  
 M-Pa-T-4: infradental papillae, position: lateral, close to dental plate  
 M-Pa-T-5: Adoral shield spine shape : ?  
 M-Pa-T-6: Second degree ASS, position: ?  
 M-Pa-T-7: Additional lateral papillae, shape: ?  
 M-Pa-T-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : ?  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Amphilimna olivacea*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: oval semi-circular  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: spine-like  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : only at VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: almost beyond zygocondyles (e.g.. Ophiodoris)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part longer than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : present  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : twisted  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: with spines only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles

D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : ?  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: separated distally  
 D-RS-5: Radial shield shape : scalene triangular  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: wing-like folded  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
 LAP-I-3: Ridge on inner side of LAP, shape: not possible  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
 LAP-I-6: Ridge on inner side of LAP, shape: not possible  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: simple  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
 LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)  
 LAP-SA-15: Dorsal and ventral lobes, shape: straight  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : middle spine art. larger  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : dorsal half widest  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madrepore size : larger than remaining oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: distal  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute to right angle with convex to straight sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining more than two thirds of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : spiniform  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : rectangular  
 OR-GP-3: Rectangular oral GP, details : with processes  
 OR-GP-4: Oval oral GP, details : not possible  
 VI-2: Ventral interradii, covering : with spines  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Amphiophiura insolita*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : ?

A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: almost beyond zygocondyles (e.g.. Ophiodoris)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part longer than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: spine-like  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : trapezoid to rectangular  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: papillae  
 AB-GP-8: AbGP papillae, extension: extending to latero-dorsal disc edge  
 AB-GP-9: Ventral genital papillae, shape : granule-like  
 AD-GP-1: Adradial GP shape : stout, half as wide as long  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : few thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : smooth patch  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: separated proximally  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent

LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: ridge separated into two halves  
LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: like surrounding stereom  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
LAP-SA-12: Dorsal and ventral lobes connection : not possible  
LAP-SA-13: Dorsal and ventral lobe size : not possible  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
LAP-SA-17: Lobes, orientation on plate: not possible  
LAP-SA-19: Sigmoidal fold, expression: not possible  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : vertical mouth-shaped, sharply defined elevation  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: oblique  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: thick, lip-shaped and strongly protruding  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : ventralwards increasing  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : ventral half widest  
M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : longer than one third of length of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madrepore size : similar to other oral shields  
M-OAS-4: Madrepore inner side, structure: 1–2 openings  
M-OAS-5: Madrepore inner opening, position: proximal  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : obtuse angle with concave sides  
M-OAS-9: Oral shield distal portion shape : evenly convex



M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-Pa-T-10: Second degree adoral shield spine, number: multiple  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: absent  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-Pa-T-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-Pa-T-4: infradental papillae, position: lateral, at distance from dental plate  
 M-Pa-T-5: Adoral shield spine shape : scale-like or like other papillae  
 M-Pa-T-6: Second degree ASS, position: at 2nd tenacle pore  
 M-Pa-T-7: Additional lateral papillae, shape: ?  
 M-Pa-T-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

#### *Amphiophiura latro*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: almost beyond zygocondyles (e.g.. Ophiodoris)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent

A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: spine-like  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : trapezoid to rectangular  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: papillae  
 AB-GP-8: AbGP papillae, extension: extending to latero-dorsal disc edge  
 AB-GP-9: Ventral genital papillae, shape : spine-like  
 AD-GP-1: Adradial GP shape : stout, half as wide as long  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : thick scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : in contact with CPP  
 D-RS-10: RS articulation shape : smooth patch  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: in contact over entire length  
 D-RS-5: Radial shield shape : half-circle  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: entire  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom

LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?

LAP-SA-10: Articular structures, shape: like surrounding stereom

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: denticulate

LAP-SA-12: Dorsal and ventral lobes connection : not possible

LAP-SA-13: Dorsal and ventral lobe size : not possible

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible

LAP-SA-15: Dorsal and ventral lobes, shape: not possible

LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible

LAP-SA-17: Lobes, orientation on plate: not possible

LAP-SA-19: Sigmoidal fold, expression: not possible

LAP-SA-1: Spine articulations, position: on same level as remaining outer surface

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : vertical mouth-shaped, sharply defined elevation

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: oblique

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: thick, lip-shaped and strongly protruding

LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge

LAP-SA-6: Spine art. size : all similar

LAP-SA-7: Spine articulations, distance: equidistant

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: ?

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: distalwards, close to horizontal midline of LAP

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : no

M-DP-1: Dental plate : entire

M-DP-2: Dental plate geometry : ventral half widest

M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate

M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring

M-DP-7: Tooth sockets, depth: depression or perforating DP without septum

M-OAS-1: Oral shield length : longer than one third of length of interradius

M-OAS-2: Oral shield shape : longer than wide

M-OAS-3: Madreporite size : similar to other oral shields

M-OAS-4: Madreporite inner side, structure: 1–2 openings

M-OAS-5: Madreporite inner opening, position: proximal

M-OAS-6: Adoral shields proximity: meeting proximal to oral shield

M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides

M-OAS-9: Oral shield distal portion shape : square

M-OP-1: Oral plate shape : longer than high

M-OP-2: Abradial muscle fossa shape: central depression

M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area

M-Pa-T-12: Tooth papillae, number: 2

M-PaT-10: Second degree adoral shield spine, number: multiple

M-PaT-11: Lyman's ossicle, position: ?

M-PaT-13: Accessory oral papillae: absent

M-PaT-1: Lateral papillae, arrangement: single row along jaw edge

M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae

M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)

M-PaT-4: infradental papillae, position: lateral, at distance from dental plate

M-PaT-5: Adoral shield spine shape : scale-like or like other papillae

M-PaT-6: Second degree ASS, position: at 2nd tenacle pore

M-PaT-7: Additional lateral papillae, shape: ?

M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
M-SP-1: Second tentacle pore position : shallow and oblique  
OR-GP-1: Oral GP : absent  
OR-GP-2: Oral GP, shape : ?  
OR-GP-3: Rectangular oral GP, details : ?  
OR-GP-4: Oval oral GP, details : ?  
VI-2: Ventral interradii, covering : naked  
VI-3: Genital slit length : longer than half interradius or divided into two openings

---

---

*Amphipholis squamata*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
A-DP-11: Accessory dorsal arm plates: absent  
A-DP-2: DAPs per segment, number: single  
A-DP-3: Proximal DAP series, position: separated  
A-DP-4: Proximal DAPs, shape: fan-shaped  
A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
A-G-2: Integument of arms structure: naked  
A-G-3: Arms shape: simple  
A-S-10: Hook-shaped arm spines, position: at no segments  
A-S-11: Hook-shaped spines shape : not possible  
A-S-13: Arm spines, size pattern: all equal  
A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
A-S-1: Arm spine position : lateral  
A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
A-S-3: Longest spine, length: shorter than half a segment  
A-S-4: Arm spine interior structure : with lumen  
A-S-5: Arm spine surface ornamentation: smooth  
A-S-7: Arm spine, cross section shape: round  
A-S-8: Tip of arm spines shape: pointed  
A-TS-3: Tentacle scales, shape: operculiform/round to oval  
A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
A-TS-6: Tentacle scale placement : at both LAP and VAP  
A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
A-V-6: Zygosphenes fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
A-V-7: Needle-like thorns in dorsal groove : absent  
A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: as wide as proximal portion or narrower  
A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised  
A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
AB-GP-11: Longitudinal groove in abradial surface: absent  
AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
AB-GP-13: Abradial GP crosses adradial GP : no  
AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
AB-GP-2: Abradial genital plate shape : blade-like straight  
AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
AB-GP-6: Abradial genital plate covering : fully covered  
AB-GP-7: AbGP plate papillae/granules, nature: ?

AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: in contact over entire length  
 D-RS-5: Radial shield shape : half-circle  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
 LAP-I-3: Ridge on inner side of LAP, shape: not possible  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
 LAP-I-6: Ridge on inner side of LAP, shape: not possible  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: simple  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : simply separated  
 LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)  
 LAP-SA-15: Dorsal and ventral lobes, shape: straight  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?

LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: equidistant  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : dorsal half widest  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madreporite size : larger than remaining oral shields  
M-OAS-4: Madreporite inner side, structure: ?  
M-OAS-5: Madreporite inner opening, position: ?  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : acute to right angle with convex to straight sides  
M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
M-OP-1: Oral plate shape : as high as long or higher  
M-OP-2: Abradial muscle fossa shape: large, well defined flange  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: with large, dorsal, spoon-shaped depression  
M-Pa-T-12: Tooth papillae, number: ?  
M-Pa-T-10: Second degree adoral shield spine, number: single  
M-Pa-T-11: Lyman's ossicle, position: ?  
M-Pa-T-13: Accessory oral papillae: absent  
M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
M-Pa-T-2: Ventralmost tooth, position: exposed  
M-Pa-T-3: Buccal scale, shape: ?  
M-Pa-T-4: infradental papillae, position: below teeth  
M-Pa-T-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
M-Pa-T-6: Second degree ASS, position: at oral plate  
M-Pa-T-7: Additional lateral papillae, shape: ?  
M-Pa-T-8: Teeth, shape: with square tip  
M-Pa-T-9: Infradental papillae, relative size: larger than other oral papillae  
M-SP-1: Second tentacle pore position : deep inside mouth slit  
OR-GP-1: Oral GP : present  
OR-GP-2: Oral GP, shape : oval  
OR-GP-3: Rectangular oral GP, details : not possible  
OR-GP-4: Oval oral GP, details : ?  
VI-2: Ventral interradial, covering : naked  
VI-3: Genital slit length : longer than half interradius or divided into two openings

=====  
*Amphiura chiajei*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
A-DP-11: Accessory dorsal arm plates: absent  
A-DP-2: DAPs per segment, number: single  
A-DP-3: Proximal DAP series, position: in contact

A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : with lumen  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: almost beyond zygocondyles (e.g.. Ophiodoris)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part longer than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : yes  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge

D-RS-12: Conspicuous pore in inner side of RS : absent  
D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
D-RS-5: Radial shield shape : half-circle  
D-RS-6: Radial shield abradial edge shape : with extension(s) (regular outline enlarged)  
D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
D-RS-9: Muscle attachment area on RS, shape: round, flat  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Vento-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : yes  
LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
LAP-I-3: Ridge on inner side of LAP, shape: not possible  
LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
LAP-I-6: Ridge on inner side of LAP, shape: not possible  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: with a knob  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : simply separated  
LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)  
LAP-SA-15: Dorsal and ventral lobes, shape: straight  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : ventralwards increasing  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : dorsal half widest  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
M-DP-7: Tooth sockets, depth: at least some perforating DP with septum



M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : larger than remaining oral shields  
 M-OAS-4: Madreporite inner side, structure: 1–2 openings  
 M-OAS-5: Madreporite inner opening, position: centro-distal  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: rib-like branching structures  
 M-OP-4: Adradial muscle attachment area position: with large, dorsal, spoon-shaped depression  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: pointed wide, higher on oral plate (*Amphiura*)  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: larger than other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : comma-shaped  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : not possible  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Amphiura filiformis*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at proximal and distal segments  
 A-S-11: Hook-shaped spines shape : true, hyaline hook  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : with lumen  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: ?  
 A-TS-4: Tentacle scales, size: ?  
 A-TS-5: Tentacle scales ornamentation : ?  
 A-TS-6: Tentacle scale placement : ?

A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macrated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macrated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macrated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macrated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macrated) shape: not incised  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : ?  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: separated proximally  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : with extension(s) (regular outline enlarged)  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
 LAP-I-3: Ridge on inner side of LAP, shape: not possible  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible

LAP-I-6: Ridge on inner side of LAP, shape: not possible  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: simple  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : simply separated  
LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. *Amphiura*)  
LAP-SA-15: Dorsal and ventral lobes, shape: straight  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : ventralwards increasing  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : dorsal half widest  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madreporite size : larger than remaining oral shields  
M-OAS-4: Madreporite inner side, structure: ?  
M-OAS-5: Madreporite inner opening, position: ?  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : evenly convex  
M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
M-OP-1: Oral plate shape : as high as long or higher  
M-OP-2: Abradial muscle fossa shape: large, well defined flange  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: with large, dorsal, spoon-shaped depression  
M-Pa-T-12: Tooth papillae, number: ?  
M-Pa-T-10: Second degree adoral shield spine, number: ?  
M-Pa-T-11: Lyman's ossicle, position: ?  
M-Pa-T-13: Accessory oral papillae: absent  
M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
M-Pa-T-2: Ventralmost tooth, position: exposed

M-PaT-3: Buccal scale, shape: pointed wide, higher on oral plate (Amphiura)  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : spiniform  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: larger than other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : bar-like  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : not possible  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

*Aplocoma agassizi*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: between half a segment and one segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: ?  
 AB-GP-11: Longitudinal groove in abradial surface: ?  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no

AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : trapezoid to rectangular  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isosceles triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: entire  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: weakly developed  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : ventralwards increasing  
LAP-SA-7: Spine articulations, distance: equidistant  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : longer than wide  
M-OAS-3: Madreporite size : similar to other oral shields  
M-OAS-4: Madreporite inner side, structure: ?  
M-OAS-5: Madreporite inner opening, position: ?  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
M-Pa-T-12: Tooth papillae, number: ?  
M-PaT-10: Second degree adoral shield spine, number: ?  
M-PaT-11: Lyman's ossicle, position: ?  
M-PaT-13: Accessory oral papillae: ?  
M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
M-PaT-2: Ventralmost tooth, position: exposed  
M-PaT-3: Buccal scale, shape: ?  
M-PaT-4: infradental papillae, position: ?  
M-PaT-5: Adoral shield spine shape : ?  
M-PaT-6: Second degree ASS, position: ?  
M-PaT-7: Additional lateral papillae, shape: ?  
M-PaT-8: Teeth, shape: spine-like, thin and sharply pointed  
M-PaT-9: Infradental papillae, relative size: ?  
M-SP-1: Second tentacle pore position : deep inside mouth slit  
OR-GP-1: Oral GP : present  
OR-GP-2: Oral GP, shape : ?  
OR-GP-3: Rectangular oral GP, details : ?  
OR-GP-4: Oval oral GP, details : ?  
VI-2: Ventral interradii, covering : with granules  
VI-3: Genital slit length : longer than half interradius or divided into two openings

=====  
*Aspiduriella scutellata*

- A-DP-10: Spurs at proximal edge of DAP (macerated): absent
- A-DP-11: Accessory dorsal arm plates: absent
- A-DP-2: DAPs per segment, number: single
- A-DP-3: Proximal DAP series, position: separated
- A-DP-4: Proximal DAPs, shape: fan-shaped
- A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation
- A-G-2: Integument of arms structure: naked
- A-G-3: Arms shape: simple
- A-S-10: Hook-shaped arm spines, position: at no segments
- A-S-11: Hook-shaped spines shape : not possible
- A-S-13: Arm spines, size pattern: all equal
- A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards
- A-S-1: Arm spine position : lateral
- A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)
- A-S-3: Longest spine, length: shorter than half a segment
- A-S-4: Arm spine interior structure : ?
- A-S-5: Arm spine surface ornamentation: smooth
- A-S-7: Arm spine, cross section shape: laterally flattened
- A-S-8: Tip of arm spines shape: blunt
- A-TS-3: Tentacle scales, shape: operculiform/round to oval
- A-TS-4: Tentacle scales, size: not accurately closing tentacle pore
- A-TS-5: Tentacle scales ornamentation : without longitudinal striation
- A-TS-6: Tentacle scale placement : at both LAP and VAP
- A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting
- A-V-2: Lateral saddle between muscular fossae structure: with single ridge
- A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel
- A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygocond. or projecting beyond ventral edge of zygocond. with projecting part shorter than zygocond.
- A-V-7: Needle-like thorns in dorsal groove : absent
- A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation
- A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent
- A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates
- A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight
- A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight
- A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion
- A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised
- A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible
- AB-GP-10: Conspicuous perforation in adradial surface of abGP: ?
- AB-GP-11: Longitudinal groove in abradial surface: ?
- AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?
- AB-GP-13: Abradial GP crosses adradial GP : ?
- AB-GP-1: Abradial genital plate relative length : ?
- AB-GP-2: Abradial genital plate shape : ?
- AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?
- AB-GP-6: Abradial genital plate covering : ?
- AB-GP-7: AbGP plate papillae/granules, nature: ?
- AB-GP-8: AbGP papillae, extension: ?
- AB-GP-9: Ventral genital papillae, shape : ?
- AD-GP-1: Adradial GP shape : ?
- AD-GP-2: AdGP to RS articular structures, shape : ?
- AD-GP-3: Bar-like adGP subtypes, shape : ?
- AD-GP-4: Additional structures on adGP, shape : ?
- D-GS-1: Dorsal disc covering, nature: with granules only
- D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin
- D-GS-5: Radial shield granule/spine covering : naked

D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : few thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : in contact with CPP  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: in contact over entire length  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: entire  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : no discernible band of different stereom  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
 LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
 LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: oblique  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: thick, lip-shaped and strongly protruding  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge



LAP-SA-6: Spine art. size : all similar  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : yes  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : ?  
 M-DP-2: Dental plate geometry : ?  
 M-DP-3: Tooth sockets, pattern: ?  
 M-DP-5: Tooth sockets, predominant shape: ?  
 M-DP-7: Tooth sockets, depth: ?  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : ?  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : shorter than half interradius

---

*Aspiduriella streichani*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible

A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : ?  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : ?  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphenes fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: ?  
 AB-GP-11: Longitudinal groove in abradial surface: ?  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : ?  
 AB-GP-2: Abradial genital plate shape : ?  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : ?  
 AD-GP-2: AdGP to RS articular structures, shape : ?  
 AD-GP-3: Bar-like adGP subtypes, shape : ?  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : few thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : in contact with CPP  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: separated proximally  
 D-RS-5: Radial shield shape : isosceles triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire

D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
D-RS-9: Muscle attachment area on RS, shape: ?  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: ?  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: entire  
LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : no discernible band of different stereom  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: like surrounding stereom  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
LAP-SA-12: Dorsal and ventral lobes connection : not possible  
LAP-SA-13: Dorsal and ventral lobe size : not possible  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
LAP-SA-17: Lobes, orientation on plate: not possible  
LAP-SA-19: Sigmoidal fold, expression: not possible  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: oblique  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: thick, lip-shaped and strongly protruding  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : ?  
M-DP-1: Dental plate : ?  
M-DP-2: Dental plate geometry : ?  
M-DP-3: Tooth sockets, pattern: ?  
M-DP-5: Tooth sockets, predominant shape: ?  
M-DP-7: Tooth sockets, depth: ?

M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madreporite size : larger than remaining oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : ?  
 M-OP-2: Abradial muscle fossa shape: ?  
 M-OP-3: Abradial muscle attachment area stereom structure: ?  
 M-OP-4: Adradial muscle attachment area position: ?  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: multiple rows covering jaws  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : ?  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: rounded  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : ?  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : shorter than half interradius

=====

#### *Asteronyx loveni*

A-DP-10: Spurs at proximal edge of DAP (macerated): not possible  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: none  
 A-DP-3: Proximal DAP series, position: ?  
 A-DP-4: Proximal DAPs, shape: not possible  
 A-DP-8: Proximal DAPs, ornamentation: not possible  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at proximal and distal segments  
 A-S-11: Hook-shaped spines shape : both modified regular spines and true hooks  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : at prox. segments only on ventral side of arm  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: ventral spine closing tentacle opening  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP

A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: ?  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: ?  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: ?  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: ?  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: ?  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): ?  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : triangular to pear-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : fused to adGP  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : blade-like, straight (excluding distal tip curving dorsal)  
 AD-GP-2: AdGP to RS articular structures, shape : condylar process  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : very few thin small scales or none  
 D-P-3: Dorsal disc scale size : ?  
 D-P-4: Dorsal disc scale stereom structure : ?  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : no special structure  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: only lateral  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: ridge separated into two halves  
 LAP-I-5: Ridge on inner side og LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip

LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : no discernible band of different stereom  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
 LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
 LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: ?  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: ?  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : all similar  
 LAP-SA-7: Spine articulations, distance: ventralwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: multiple columns throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : larger than remaining oral shields  
 M-OAS-4: Madreporite inner side, structure: meshwork of openings  
 M-OAS-5: Madreporite inner opening, position: central  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining more than two thirds of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-Pa-T-10: Second degree adoral shield spine, number: ?  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: present  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge

M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : ?  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: spiniform  
 M-PaT-8: Teeth, shape: spine-like, thin and sharply pointed  
 M-PaT-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : shorter than half interradius

=====

### *Astrophiura*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: ?  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : ?  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: ?  
 A-V-4: Zygocondyles in proximal vertebrae position: ?  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: concave or incised  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: ?  
 AB-GP-11: Longitudinal groove in abradial surface: ?  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?

AB-GP-13: Abradial GP crosses adradial GP : ?  
 AB-GP-1: Abradial genital plate relative length : ?  
 AB-GP-2: Abradial genital plate shape : ?  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?  
 AB-GP-6: Abradial genital plate covering : ?  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : few thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: separated proximally  
 D-RS-5: Radial shield shape : isosceles triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : ?  
 LAP-I-15: Perforations on inner side of LAP, shape: ?  
 LAP-I-1: Inner side of LAP, main structure: ?  
 LAP-I-3: Ridge on inner side of LAP, shape: ?  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: ?  
 LAP-I-6: Ridge on inner side of LAP, shape: ?  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: ?  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: ?  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : no discernible band of different stereom  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible



LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
 LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: ?  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: ?  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
 LAP-SA-6: Spine art. size : all similar  
 LAP-SA-7: Spine articulations, distance: ?  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: ?  
 LAP-TP-2: Tentacle notch, direction: ?  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : ?  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : ?  
 M-DP-1: Dental plate : ?  
 M-DP-2: Dental plate geometry : ?  
 M-DP-3: Tooth sockets, pattern: ?  
 M-DP-5: Tooth sockets, predominant shape: ?  
 M-DP-7: Tooth sockets, depth: ?  
 M-OAS-1: Oral shield length : ?  
 M-OAS-2: Oral shield shape : ?  
 M-OAS-3: Madrepore size : larger than remaining oral shields  
 M-OAS-4: Madrepore inner side, structure: ?  
 M-OAS-5: Madrepore inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining more than two thirds of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: spine-like, thin and sharply pointed  
 M-PaT-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : ?

=====

*Breviturma brevipes*

- A-DP-10: Spurs at proximal edge of DAP (macerated): absent
- A-DP-11: Accessory dorsal arm plates: absent
- A-DP-2: DAPs per segment, number: single
- A-DP-3: Proximal DAP series, position: in contact
- A-DP-4: Proximal DAPs, shape: oval semi-circular
- A-DP-8: Proximal DAPs, ornamentation: tuberculous
- A-G-2: Integument of arms structure: naked
- A-G-3: Arms shape: simple
- A-S-10: Hook-shaped arm spines, position: at no segments
- A-S-11: Hook-shaped spines shape : not possible
- A-S-13: Arm spines, size pattern: ventralmost spine(s) longest
- A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards
- A-S-1: Arm spine position : lateral
- A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm
- A-S-3: Longest spine, length: 1-2 segments
- A-S-4: Arm spine interior structure : massive
- A-S-5: Arm spine surface ornamentation: with scale-like tubercles
- A-S-7: Arm spine, cross section shape: laterally flattened
- A-S-8: Tip of arm spines shape: blunt
- A-TS-3: Tentacle scales, shape: operculiform/round to oval
- A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger
- A-TS-5: Tentacle scales ornamentation : without longitudinal striation
- A-TS-6: Tentacle scale placement : only at LAP
- A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)
- A-V-2: Lateral saddle between muscular fossae structure: with single ridge
- A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel
- A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.
- A-V-7: Needle-like thorns in dorsal groove : absent
- A-VP-10: Proximal VAPs ornamentation: with tubercles or striation
- A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent
- A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact
- A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight
- A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight
- A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion
- A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle
- A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent
- AB-GP-10: Conspicuous perforation in adradial surface of abGP: present
- AB-GP-11: Longitudinal groove in abradial surface: present
- AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?
- AB-GP-13: Abradial GP crosses adradial GP : no
- AB-GP-1: Abradial genital plate relative length : as long as adradial plate
- AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped
- AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave
- AB-GP-6: Abradial genital plate covering : fully covered
- AB-GP-7: AbGP plate papillae/granules, nature: ?
- AB-GP-8: AbGP papillae, extension: ?
- AB-GP-9: Ventral genital papillae, shape : ?
- AD-GP-1: Adradial GP shape : bar-like
- AD-GP-2: AdGP to RS articular structures, shape : single condyle
- AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated
- AD-GP-4: Additional structures on adGP, shape : ?
- D-GS-1: Dorsal disc covering, nature: with granules only
- D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)
- D-GS-5: Radial shield granule/spine covering : at least partly covered

D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : incised/irregular  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
 LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
 LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
 LAP-SA-17: Lobes, orientation on plate: tilted  
 LAP-SA-19: Sigmoidal fold, expression: fully developed  
 LAP-SA-1: Spine articulations, position: on elevation not bordered by ridge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : all similar

LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
 M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: separated  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: flange over most of lateral surface, with striations  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-Pa-T-10: Second degree adoral shield spine, number: single  
 M-Pa-T-11: Lyman's ossicle, position: in line with other papillae  
 M-Pa-T-13: Accessory oral papillae: absent  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-Pa-T-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-Pa-T-4: infradental papillae, position: lateral, close to dental plate  
 M-Pa-T-5: Adoral shield spine shape : scale-like or like other papillae  
 M-Pa-T-6: Second degree ASS, position: at oral plate  
 M-Pa-T-7: Additional lateral papillae, shape: rounded  
 M-Pa-T-8: Teeth, shape: with square tip  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

#### *Breviturma krohi*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: oval semi-circular  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest

A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: present  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : few thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : incised/irregular

D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
 LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
 LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
 LAP-SA-17: Lobes, orientation on plate: tilted  
 LAP-SA-19: Sigmoidal fold, expression: fully developed  
 LAP-SA-1: Spine articulations, position: on elevation not bordered by ridge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : all similar  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
 M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : longer than wide

M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: separated  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: flange over most of lateral surface, with striations  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: rounded  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Eirenura papillata*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: leaf-like blunt  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: far from distal edge of zygocondyles (e.g. Ophiacantha)

A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygoclypeus in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygoclypeus fused with pair of zygoclypeus size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisures/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: ?  
 AB-GP-11: Longitudinal groove in abradial surface: ?  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : ?  
 AB-GP-1: Abradial genital plate relative length : ?  
 AB-GP-2: Abradial genital plate shape : ?  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : ?  
 AD-GP-2: AdGP to RS articular structures, shape : ?  
 AD-GP-3: Bar-like adGP subtypes, shape : ?  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: with both granules and spines  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : modified (e.g. enlarged) at disc edge  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : ?  
 D-P-7: Primary radial plates position : ?  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: separated proximally  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: entire  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom



LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion

LAP-I-7: Large dorsal contact surface with opposite LAP: absent

LAP-I-8: Large ventral contact surface with opposite LAP : absent

LAP-I-9: Two central knobs on inner side of LAP, shape: not possible

LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: present

LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP

LAP-O-8: Outer surface, structure: vertical striation formed by merged knobs

LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : along most of the edge

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection

LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)

LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent

LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive

LAP-SA-17: Lobes, orientation on plate: nearly vertical

LAP-SA-19: Sigmoidal fold, expression: ?

LAP-SA-1: Spine articulations, position: on same level as remaining outer surface

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by a thin projection of the distal LAP portion (e.g. Ophiomyces)

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge

LAP-SA-6: Spine art. size : ventralwards increasing

LAP-SA-7: Spine articulations, distance: equidistant

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: smaller than muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : no

M-DP-1: Dental plate : entire

M-DP-2: Dental plate geometry : equal width all over

M-DP-3: Tooth sockets, pattern: single column throughout

M-DP-5: Tooth sockets, predominant shape: simple opening

M-DP-7: Tooth sockets, depth: depression or perforating DP without septum

M-OAS-1: Oral shield length : longer than one third of length of interradius

M-OAS-2: Oral shield shape : longer than wide

M-OAS-3: Madreporite size : similar to other oral shields

M-OAS-4: Madreporite inner side, structure: ?

M-OAS-5: Madreporite inner opening, position: ?

M-OAS-6: Adoral shields proximity: meeting proximal to oral shield

M-OAS-8: Oral shield proximal portion shape : acute to right angle with convex to straight sides

M-OAS-9: Oral shield distal portion shape : square

M-OP-1: Oral plate shape : longer than high

M-OP-2: Abradial muscle fossa shape: central depression

M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area

M-Pa-T-12: Tooth papillae, number: ?

M-PaT-10: Second degree adoral shield spine, number: multiple

M-PaT-11: Lyman's ossicle, position: ?

M-PaT-13: Accessory oral papillae: ?

M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: lateral, at distance from dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at 2nd tenacle pore  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Euryale aspera*

A-DP-10: Spurs at proximal edge of DAP (macrated): not possible  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: none  
 A-DP-3: Proximal DAP series, position: ?  
 A-DP-4: Proximal DAPs, shape: not possible  
 A-DP-8: Proximal DAPs, ornamentation: not possible  
 A-G-2: Integument of arms structure: bearing granules  
 A-G-3: Arms shape: branching  
 A-S-10: Hook-shaped arm spines, position: at proximal and distal segments  
 A-S-11: Hook-shaped spines shape : true, hyaline hook  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
 A-S-1: Arm spine position : at prox. segments only on ventral side of arm  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : ?  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: ventral spine closing tentacle opening  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with multiple knobs (e.g. Gorgonocephalus)  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: ?  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macrated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macrated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macrated) shape: concave or incised  
 A-VP-6: Distal portion of proximal VAPs (macrated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macrated) shape: not incised  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?

AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : triangular to pear-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : stout, half as wide as long  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : very few thin small scales or none  
 D-P-3: Dorsal disc scale size : ?  
 D-P-4: Dorsal disc scale stereom structure : ?  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : smooth patch  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isosceles triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: large depression (Gorgonocephalus)  
 LAP-G-1: LAPs, position: only lateral  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: ridge separated into two halves  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : no discernible band of different stereom  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible

LAP-SA-13: Dorsal and ventral lobe size : not possible  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
LAP-SA-17: Lobes, orientation on plate: not possible  
LAP-SA-19: Sigmoidal fold, expression: not possible  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: ?  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: ?  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: only 2  
LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: within-plate perforation  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : several pieces  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madreporite size : similar to other oral shields  
M-OAS-4: Madreporite inner side, structure: meshwork of openings  
M-OAS-5: Madreporite inner opening, position: central  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
M-OAS-9: Oral shield distal portion shape : evenly convex  
M-OP-1: Oral plate shape : as high as long or higher  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining more than two thirds of adradial articulation area  
M-Pa-T-12: Tooth papillae, number: ?  
M-PaT-10: Second degree adoral shield spine, number: ?  
M-PaT-11: Lyman's ossicle, position: ?  
M-PaT-13: Accessory oral papillae: present  
M-PaT-1: Lateral papillae, arrangement: multiple rows covering jaws  
M-PaT-2: Ventralmost tooth, position: exposed  
M-PaT-3: Buccal scale, shape: ?  
M-PaT-4: infradental papillae, position: ?  
M-PaT-5: Adoral shield spine shape : ?  
M-PaT-6: Second degree ASS, position: ?  
M-PaT-7: Additional lateral papillae, shape: rounded  
M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
M-PaT-9: Infradental papillae, relative size: ?  
M-SP-1: Second tentacle pore position : shallow and oblique  
OR-GP-1: Oral GP : absent  
OR-GP-2: Oral GP, shape : ?  
OR-GP-3: Rectangular oral GP, details : ?  
OR-GP-4: Oval oral GP, details : ?  
VI-2: Ventral interradii, covering : naked  
VI-3: Genital slit length : shorter than half interradius

=====

*Gorgonocephalus caputmedusae*

- A-DP-10: Spurs at proximal edge of DAP (macerated): absent
- A-DP-11: Accessory dorsal arm plates: absent
- A-DP-2: DAPs per segment, number: multiple
- A-DP-3: Proximal DAP series, position: in contact
- A-DP-4: Proximal DAPs, shape: oval semi-circular
- A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation
- A-G-2: Integument of arms structure: bearing granules
- A-G-3: Arms shape: branching
- A-S-10: Hook-shaped arm spines, position: at proximal and distal segments
- A-S-11: Hook-shaped spines shape : both modified regular spines and true hooks
- A-S-13: Arm spines, size pattern: ventralmost spine(s) longest
- A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards
- A-S-1: Arm spine position : at prox. segments only on ventral side of arm
- A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm
- A-S-3: Longest spine, length: shorter than half a segment
- A-S-4: Arm spine interior structure : massive
- A-S-5: Arm spine surface ornamentation: with lateral thorns
- A-S-7: Arm spine, cross section shape: laterally flattened
- A-S-8: Tip of arm spines shape: blunt
- A-TS-3: Tentacle scales, shape: ventral spine closing tentacle opening
- A-TS-4: Tentacle scales, size: not accurately closing tentacle pore
- A-TS-5: Tentacle scales ornamentation : without longitudinal striation
- A-TS-6: Tentacle scale placement : only at LAP
- A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting
- A-V-2: Lateral saddle between muscular fossae structure: with multiple knobs (e.g. *Gorgonocephalus*)
- A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel
- A-V-6: Zygosphene fused with pair of zygocondyles size: ?
- A-V-7: Needle-like thorns in dorsal groove : absent
- A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation
- A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent
- A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact
- A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: ?
- A-VP-5: Proximal edge of proximal VAPs (macerated) shape: ?
- A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: ?
- A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: ?
- A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. *Ophiomyces*): ?
- AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent
- AB-GP-11: Longitudinal groove in abradial surface: absent
- AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?
- AB-GP-13: Abradial GP crosses adradial GP : no
- AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length
- AB-GP-2: Abradial genital plate shape : blade-like straight
- AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex
- AB-GP-6: Abradial genital plate covering : fully covered
- AB-GP-7: AbGP plate papillae/granules, nature: ?
- AB-GP-8: AbGP papillae, extension: ?
- AB-GP-9: Ventral genital papillae, shape : ?
- AD-GP-1: Adradial GP shape : bar-like
- AD-GP-2: AdGP to RS articular structures, shape : flat
- AD-GP-3: Bar-like adGP subtypes, shape : distally inflated
- AD-GP-4: Additional structures on adGP, shape : ?
- D-GS-1: Dorsal disc covering, nature: with spines only
- D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin
- D-GS-5: Radial shield granule/spine covering : at least partly covered

D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : very few thin small scales or none  
 D-P-3: Dorsal disc scale size : ?  
 D-P-4: Dorsal disc scale stereom structure : ?  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : smooth patch  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: large depression (Gorgonocephalus)  
 LAP-G-1: LAPs, position: only lateral  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: ridge separated into two halves  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : no discernible band of different stereom  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
 LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
 LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: vertical  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: slender  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
 LAP-SA-6: Spine art. size : all similar  
 LAP-SA-7: Spine articulations, distance: ventralwards increasing

LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : several pieces  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: multiple columns throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madreporite size : larger than remaining oral shields  
 M-OAS-4: Madreporite inner side, structure: meshwork of openings  
 M-OAS-5: Madreporite inner opening, position: central  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : square  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining more than two thirds of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: present  
 M-PaT-1: Lateral papillae, arrangement: multiple rows covering jaws  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : ?  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: spiniform  
 M-PaT-8: Teeth, shape: spine-like, thin and sharply pointed  
 M-PaT-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with spines  
 VI-3: Genital slit length : shorter than half interradius

=====

#### *Hemieuryale pustulata*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: present  
 A-DP-2: DAPs per segment, number: multiple  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: ?  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest

A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : at prox. segments only on ventral side of arm  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (addressed)  
 A-S-3: Longest spine, length: between half a segment and one segment  
 A-S-4: Arm spine interior structure : ?  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphenes fused with pair of zygocondyles size: ?  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisures/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : ?  
 AB-GP-2: Abradial genital plate shape : ?  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?  
 AB-GP-6: Abradial genital plate covering : ?  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : comma-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : thick scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : with smooth tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : smooth patch  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isosceles triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: only lateral



LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)  
LAP-SA-15: Dorsal and ventral lobes, shape: straight  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : ventralwards increasing  
LAP-SA-7: Spine articulations, distance: only 2  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : dorsal half widest  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : longer than one third of length of interradius  
M-OAS-2: Oral shield shape : wider than long  
M-OAS-3: Madrepore size : larger than remaining oral shields  
M-OAS-4: Madrepore inner side, structure: ?

M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : shorter than half interradius

=====

### *Histampica duplicata*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : with lumen  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge

A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : wrench-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : condylar process  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : half-circle  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : no  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
 LAP-I-3: Ridge on inner side of LAP, shape: not possible  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
 LAP-I-6: Ridge on inner side of LAP, shape: not possible  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent

LAP-I-9: Two central knobs on inner side of LAP, shape: with a knob  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : simply separated  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. *Amphiura*)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : middle spine art. larger  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madreporite size : larger than remaining oral shields  
M-OAS-4: Madreporite inner side, structure: 1–2 openings  
M-OAS-5: Madreporite inner opening, position: central  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : acute to right angle with convex to straight sides  
M-OAS-9: Oral shield distal portion shape : evenly convex  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
M-Pa-T-12: Tooth papillae, number: ?  
M-PaT-10: Second degree adoral shield spine, number: single  
M-PaT-11: Lyman's ossicle, position: in line with other papillae  
M-PaT-13: Accessory oral papillae: absent  
M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
M-PaT-2: Ventralmost tooth, position: exposed  
M-PaT-3: Buccal scale, shape: smaller papilla (*Ophiura*)

M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: rounded  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Inexpectacantha acrobatica*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: only at distal segments  
 A-S-11: Hook-shaped spines shape : true, hyaline hook  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: longer than 2 segments  
 A-S-4: Arm spine interior structure : ?  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: leaf-like blunt  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: ?  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: ?  
 AB-GP-11: Longitudinal groove in abradial surface: ?  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : ?

AB-GP-2: Abradial genital plate shape : ?  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : ?  
 AD-GP-2: AdGP to RS articular structures, shape : ?  
 AD-GP-3: Bar-like adGP subtypes, shape : ?  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : few thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : in contact with CPP  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: present  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row with furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal tip with ventro-proximalwards pointing projection  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : along most of the edge  
 LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: fully developed  
LAP-SA-1: Spine articulations, position: on elevation not bordered by ridge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : dorsalwards increasing  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : longer than one third of length of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madreporite size : larger than remaining oral shields  
M-OAS-4: Madreporite inner side, structure: ?  
M-OAS-5: Madreporite inner opening, position: ?  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
M-Pa-T-12: Tooth papillae, number: 2  
M-PaT-10: Second degree adoral shield spine, number: single  
M-PaT-11: Lyman's ossicle, position: oblique in mouth slit  
M-PaT-13: Accessory oral papillae: absent  
M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
M-PaT-2: Ventralmost tooth, position: exposed  
M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
M-PaT-4: infradental papillae, position: lateral, close to dental plate  
M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
M-PaT-6: Second degree ASS, position: at oral plate  
M-PaT-7: Additional lateral papillae, shape: ?  
M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
M-SP-1: Second tentacle pore position : deep inside mouth slit  
OR-GP-1: Oral GP : present  
OR-GP-2: Oral GP, shape : ?  
OR-GP-3: Rectangular oral GP, details : ?  
OR-GP-4: Oval oral GP, details : ?  
VI-2: Ventral interradii, covering : with granules  
VI-3: Genital slit length : longer than half interradius or divided into two openings

=====  
*Melusinaster allissawhitegluzae*

- A-DP-10: Spurs at proximal edge of DAP (macerated): ?
- A-DP-11: Accessory dorsal arm plates: ?
- A-DP-2: DAPs per segment, number: ?
- A-DP-3: Proximal DAP series, position: ?
- A-DP-4: Proximal DAPs, shape: ?
- A-DP-8: Proximal DAPs, ornamentation: ?
- A-G-2: Integument of arms structure: ?
- A-G-3: Arms shape: simple
- A-S-10: Hook-shaped arm spines, position: ?
- A-S-11: Hook-shaped spines shape : ?
- A-S-13: Arm spines, size pattern: ?
- A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards
- A-S-1: Arm spine position : ?
- A-S-2: Arm spines, orientation: ?
- A-S-3: Longest spine, length: ?
- A-S-4: Arm spine interior structure : ?
- A-S-5: Arm spine surface ornamentation: ?
- A-S-7: Arm spine, cross section shape: ?
- A-S-8: Tip of arm spines shape: ?
- A-TS-3: Tentacle scales, shape: ?
- A-TS-4: Tentacle scales, size: ?
- A-TS-5: Tentacle scales ornamentation : ?
- A-TS-6: Tentacle scale placement : ?
- A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting
- A-V-2: Lateral saddle between muscular fossae structure: with single ridge
- A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel
- A-V-6: Zygosphene fused with pair of zygocondyles size: ?
- A-V-7: Needle-like thorns in dorsal groove : absent
- A-VP-10: Proximal VAPs ornamentation: ?
- A-VP-12: Spurs at proximal edge of VAPs (macerated) : ?
- A-VP-3: Proximal VAPs (in articulated plating), position: ?
- A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: ?
- A-VP-5: Proximal edge of proximal VAPs (macerated) shape: ?
- A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: ?
- A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: ?
- A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): ?
- AB-GP-10: Conspicuous perforation in adradial surface of abGP: ?
- AB-GP-11: Longitudinal groove in abradial surface: ?
- AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?
- AB-GP-13: Abradial GP crosses adradial GP : no
- AB-GP-1: Abradial genital plate relative length : ?
- AB-GP-2: Abradial genital plate shape : ?
- AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?
- AB-GP-6: Abradial genital plate covering : ?
- AB-GP-7: AbGP plate papillae/granules, nature: ?
- AB-GP-8: AbGP papillae, extension: ?
- AB-GP-9: Ventral genital papillae, shape : ?
- AD-GP-1: Adradial GP shape : ?
- AD-GP-2: AdGP to RS articular structures, shape : ?
- AD-GP-3: Bar-like adGP subtypes, shape : ?
- AD-GP-4: Additional structures on adGP, shape : ?
- D-GS-1: Dorsal disc covering, nature: ?
- D-GS-2: Dorsal disc granules/spines extension : ?
- D-GS-5: Radial shield granule/spine covering : ?
- D-GS-6: Dorsal disc granules/spines differentiation : ?



D-P-1: Dorsal disc scalation : ?  
 D-P-3: Dorsal disc scale size : ?  
 D-P-4: Dorsal disc scale stereom structure : ?  
 D-P-5: Central primary plate relative size : ?  
 D-P-6: Primary radial plates relative size : ?  
 D-P-7: Primary radial plates position : ?  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: ?  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: ?  
 D-RS-5: Radial shield shape : ?  
 D-RS-6: Radial shield abradial edge shape : ?  
 D-RS-7: Radial shield, exposure: ?  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: entire  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : no discernible band of different stereom  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
 LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
 LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: vertical  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: slender  
 LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : all similar

LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
 M-DP-1: Dental plate : ?  
 M-DP-2: Dental plate geometry : ?  
 M-DP-3: Tooth sockets, pattern: ?  
 M-DP-5: Tooth sockets, predominant shape: ?  
 M-DP-7: Tooth sockets, depth: ?  
 M-OAS-1: Oral shield length : ?  
 M-OAS-2: Oral shield shape : ?  
 M-OAS-3: Madreporite size : ?  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: ?  
 M-OAS-8: Oral shield proximal portion shape : ?  
 M-OAS-9: Oral shield distal portion shape : ?  
 M-OP-1: Oral plate shape : ?  
 M-OP-2: Abradial muscle fossa shape: ?  
 M-OP-3: Abradial muscle attachment area stereom structure: ?  
 M-OP-4: Adradial muscle attachment area position: ?  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-Pa-T-10: Second degree adoral shield spine, number: ?  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: ?  
 M-Pa-T-1: Lateral papillae, arrangement: ?  
 M-Pa-T-2: Ventralmost tooth, position: ?  
 M-Pa-T-3: Buccal scale, shape: ?  
 M-Pa-T-4: infradental papillae, position: ?  
 M-Pa-T-5: Adoral shield spine shape : ?  
 M-Pa-T-6: Second degree ASS, position: ?  
 M-Pa-T-7: Additional lateral papillae, shape: ?  
 M-Pa-T-8: Teeth, shape: ?  
 M-Pa-T-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : ?  
 OR-GP-1: Oral GP : ?  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : ?  
 VI-3: Genital slit length : ?

=====

### *Ophiacantha abyssicola*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest

A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: longer than 2 segments  
 A-S-4: Arm spine interior structure : with lumen  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphenes fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: ?  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: ?  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): ?  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: present  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: with spines only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : no special structure  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : bar-like  
 D-RS-6: Radial shield abradial edge shape : entire

D-RS-7: Radial shield, exposure: distal portion of RS exposed  
D-RS-9: Muscle attachment area on RS, shape: ?  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: present  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: vertical row with furrow  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal tip with ventro-proximalwards pointing projection  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on small part of outer surface of LAP  
LAP-O-8: Outer surface, structure: vertical striation formed by regular ridges  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: fully developed  
LAP-SA-1: Spine articulations, position: on elevated portion bordered prox. by ridge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum

M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madrepore size : larger than remaining oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: central  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : obtuse angle with concave sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: spiniform  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with spines  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Ophiacantha bidentata*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: longer than 2 segments  
 A-S-4: Arm spine interior structure : with lumen  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation

A-TS-6: Tentacle scale placement : only at LAP

A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)

A-V-2: Lateral saddle between muscular fossae structure: with single ridge

A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel

A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.

A-V-7: Needle-like thorns in dorsal groove : absent

A-VP-10: Proximal VAPs ornamentation: with tubercles or striation

A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent

A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates

A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight

A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight

A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion

A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle

A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent

AB-GP-10: Conspicuous perforation in adradial surface of abGP: present

AB-GP-11: Longitudinal groove in abradial surface: present

AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?

AB-GP-13: Abradial GP crosses adradial GP : no

AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length

AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped

AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex

AB-GP-6: Abradial genital plate covering : fully covered

AB-GP-7: AbGP plate papillae/granules, nature: ?

AB-GP-8: AbGP papillae, extension: ?

AB-GP-9: Ventral genital papillae, shape : ?

AD-GP-1: Adradial GP shape : bar-like

AD-GP-2: AdGP to RS articular structures, shape : single condyle

AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated

AD-GP-4: Additional structures on adGP, shape : process

D-GS-1: Dorsal disc covering, nature: with spines only

D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)

D-GS-5: Radial shield granule/spine covering : at least partly covered

D-GS-6: Dorsal disc granules/spines differentiation : uniform

D-P-1: Dorsal disc scalation : many thin scales

D-P-3: Dorsal disc scale size : uniform

D-P-4: Dorsal disc scale stereom structure : no tubercles

D-P-5: Central primary plate relative size : same size/indistinguishable/absent

D-P-6: Primary radial plates relative size : same size/indistinguishable/absent

D-P-7: Primary radial plates position : not possible

D-RS-10: RS articulation shape : no special structure

D-RS-11: RS distal edge shape : other shape

D-RS-12: Conspicuous pore in inner side of RS : present

D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius

D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated

D-RS-5: Radial shield shape : bar-like

D-RS-6: Radial shield abradial edge shape : entire

D-RS-7: Radial shield, exposure: distal portion of RS exposed

D-RS-9: Muscle attachment area on RS, shape: round, flat

LAP-G-1: LAPs, position: arched

LAP-G-3: LAPs with constriction: present

LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent

LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent

LAP-G-6: Dorsal edge distalwards ascending : absent

LAP-G-7: First LAPs, shape: like following LAPs

LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible

LAP-I-15: Perforations on inner side of LAP, shape: vertical row with furrow

LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal tip with ventro-proximalwards pointing projection  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on small part of outer surface of LAP  
LAP-O-8: Outer surface, structure: vertical striation formed by regular ridges  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: fully developed  
LAP-SA-1: Spine articulations, position: on elevated portion bordered prox. by ridge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : dorsalwards increasing  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : wider than long  
M-OAS-3: Madrepore size : similar to other oral shields  
M-OAS-4: Madrepore inner side, structure: 1-2 openings  
M-OAS-5: Madrepore inner opening, position: distal  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : obtuse angle with concave sides  
M-OAS-9: Oral shield distal portion shape : evenly convex  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-Pa-T-10: Second degree adoral shield spine, number: single  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: absent  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: exposed  
 M-Pa-T-3: Buccal scale, shape: ?  
 M-Pa-T-4: infradental papillae, position: lateral, close to dental plate  
 M-Pa-T-5: Adoral shield spine shape : scale-like or like other papillae  
 M-Pa-T-6: Second degree ASS, position: at oral plate  
 M-Pa-T-7: Additional lateral papillae, shape: spiniform  
 M-Pa-T-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : rectangular  
 OR-GP-3: Rectangular oral GP, details : with folded edge  
 OR-GP-4: Oval oral GP, details : not possible  
 VI-2: Ventral interradii, covering : with spines  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiactis abyssicola*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: ?  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : with lumen  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: ?  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight



A-VP-5: Proximal edge of proximal VAPs (macrated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macrated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macrated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : strong, curved scale  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : wrench-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: with spines only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : scalene triangular  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : no  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
 LAP-I-3: Ridge on inner side of LAP, shape: not possible  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
 LAP-I-6: Ridge on inner side of LAP, shape: not possible  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: with a knob  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : simply separated

LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. *Amphiura*)

LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent

LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive

LAP-SA-17: Lobes, orientation on plate: nearly horizontal

LAP-SA-19: Sigmoidal fold, expression: ?

LAP-SA-1: Spine articulations, position: on same level as remaining outer surface

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge

LAP-SA-6: Spine art. size : ventralwards increasing

LAP-SA-7: Spine articulations, distance: equidistant

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: smaller than muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : no

M-DP-1: Dental plate : entire

M-DP-2: Dental plate geometry : ventral half widest

M-DP-3: Tooth sockets, pattern: single column throughout

M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges

M-DP-7: Tooth sockets, depth: depression or perforating DP without septum

M-OAS-1: Oral shield length : covering less than one third of interradius

M-OAS-2: Oral shield shape : wider than long

M-OAS-3: Madrepore size : larger than remaining oral shields

M-OAS-4: Madrepore inner side, structure: 1–2 openings

M-OAS-5: Madrepore inner opening, position: central

M-OAS-6: Adoral shields proximity: meeting proximal to oral shield

M-OAS-8: Oral shield proximal portion shape : obtuse angle with concave sides

M-OAS-9: Oral shield distal portion shape : evenly convex

M-OP-1: Oral plate shape : as high as long or higher

M-OP-2: Abradial muscle fossa shape: large, well defined flange

M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining more than two thirds of adradial articulation area

M-Pa-T-12: Tooth papillae, number: ?

M-PaT-10: Second degree adoral shield spine, number: single

M-PaT-11: Lyman's ossicle, position: ?

M-PaT-13: Accessory oral papillae: absent

M-PaT-1: Lateral papillae, arrangement: single row along jaw edge

M-PaT-2: Ventralmost tooth, position: exposed

M-PaT-3: Buccal scale, shape: smaller papilla (*Ophiura*)

M-PaT-4: infradental papillae, position: lateral, close to dental plate

M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae

M-PaT-6: Second degree ASS, position: at oral plate

M-PaT-7: Additional lateral papillae, shape: ?

M-PaT-8: Teeth, shape: with square tip

M-PaT-9: Infradental papillae, relative size: similar to other oral papillae

M-SP-1: Second tentacle pore position : deep inside mouth slit

OR-GP-1: Oral GP : present  
OR-GP-2: Oral GP, shape : drop-shaped  
OR-GP-3: Rectangular oral GP, details : not possible  
OR-GP-4: Oval oral GP, details : not possible  
VI-2: Ventral interradii, covering : naked  
VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

*Ophiarachna incrassata*

A-DP-10: Spurs at proximal edge of DAP (macerated): present  
A-DP-11: Accessory dorsal arm plates: absent  
A-DP-2: DAPs per segment, number: single  
A-DP-3: Proximal DAP series, position: in contact  
A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
A-DP-8: Proximal DAPs, ornamentation: tuberculous  
A-G-2: Integument of arms structure: naked  
A-G-3: Arms shape: simple  
A-S-10: Hook-shaped arm spines, position: at no segments  
A-S-11: Hook-shaped spines shape : not possible  
A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
A-S-1: Arm spine position : lateral  
A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
A-S-3: Longest spine, length: longer than 2 segments  
A-S-4: Arm spine interior structure : massive  
A-S-5: Arm spine surface ornamentation: with scale-like tubercles  
A-S-7: Arm spine, cross section shape: round  
A-S-8: Tip of arm spines shape: pointed  
A-TS-3: Tentacle scales, shape: leaf-like blunt  
A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
A-TS-5: Tentacle scales ornamentation : ?  
A-TS-6: Tentacle scale placement : only at LAP  
A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
A-V-7: Needle-like thorns in dorsal groove : absent  
A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
A-VP-12: Spurs at proximal edge of VAPs (macerated) : present  
A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
AB-GP-11: Longitudinal groove in abradial surface: present  
AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
AB-GP-13: Abradial GP crosses adradial GP : no  
AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
AB-GP-2: Abradial genital plate shape : blade-like straight  
AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
AB-GP-6: Abradial genital plate covering : fully covered  
AB-GP-7: AbGP plate papillae/granules, nature: ?  
AB-GP-8: AbGP papillae, extension: ?  
AB-GP-9: Ventral genital papillae, shape : ?  
AD-GP-1: Adradial GP shape : bar-like

AD-GP-2: AdGP to RS articular structures, shape : 2 condyles  
AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
D-GS-1: Dorsal disc covering, nature: with granules only  
D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
D-GS-5: Radial shield granule/spine covering : at least partly covered  
D-GS-6: Dorsal disc granules/spines differentiation : uniform  
D-P-1: Dorsal disc scalation : many thin scales  
D-P-3: Dorsal disc scale size : uniform  
D-P-4: Dorsal disc scale stereom structure : no tubercles  
D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
D-P-7: Primary radial plates position : not possible  
D-RS-10: RS articulation shape : ?  
D-RS-11: RS distal edge shape : ?  
D-RS-12: Conspicuous pore in inner side of RS : ?  
D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
D-RS-6: Radial shield abradial edge shape : incised/irregular  
D-RS-7: Radial shield, exposure: distal portion of RS exposed  
D-RS-9: Muscle attachment area on RS, shape: ?  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 large (wider than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: weakly developed  
LAP-SA-1: Spine articulations, position: in notches of distal LAP edge

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : ventralwards increasing  
 LAP-SA-7: Spine articulations, distance: equidistant  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : several pieces  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: rounded  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophienigma spinilimbatum*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: fan-shaped

A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: leaf-like blunt  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : ?  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : strong, curved scale  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : wrench-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: with spines only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : one condyle

D-RS-11: RS distal edge shape : groove and lip-shaped edge  
D-RS-12: Conspicuous pore in inner side of RS : absent  
D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
D-RS-5: Radial shield shape : half-circle  
D-RS-6: Radial shield abradial edge shape : entire  
D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
D-RS-9: Muscle attachment area on RS, shape: round, flat  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : no  
LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
LAP-I-3: Ridge on inner side of LAP, shape: not possible  
LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
LAP-I-6: Ridge on inner side of LAP, shape: not possible  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: with a knob  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : simply separated  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiuira)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : middle spine art. larger  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : dorsal half widest  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges

M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: 1–2 openings  
 M-OAS-5: Madreporite inner opening, position: centro-distal  
 M-OAS-6: Adoral shields proximity: separated  
 M-OAS-8: Oral shield proximal portion shape : obtuse angle with concave sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (*Ophiura*)  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiocamax vitrea*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: longer than 2 segments  
 A-S-4: Arm spine interior structure : with lumen  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: leaf-like blunt  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger



A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: ?  
 A-V-7: Needle-like thorns in dorsal groove : present  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: concave or incised  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: with spines only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: in contact over entire length  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : incised/irregular  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: present  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous

LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: entire  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on small part of outer surface of LAP  
LAP-O-8: Outer surface, structure: with pointed thorns  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : along most of the edge  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: fully developed  
LAP-SA-1: Spine articulations, position: on elevated portion bordered prox. by ridge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : middle spine art. larger  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : wider than long  
M-OAS-3: Madrepore size : similar to other oral shields  
M-OAS-4: Madrepore inner side, structure: 1–2 openings  
M-OAS-5: Madrepore inner opening, position: central  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides  
M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
M-OP-1: Oral plate shape : as high as long or higher  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area

M-Pa-T-12: Tooth papillae, number: >2  
 M-Pa-T-10: Second degree adoral shield spine, number: multiple  
 M-Pa-T-11: Lyman's ossicle, position: oblique in mouth slit  
 M-Pa-T-13: Accessory oral papillae: absent  
 M-Pa-T-1: Lateral papillae, arrangement: multiple rows covering jaws  
 M-Pa-T-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-Pa-T-3: Buccal scale, shape: ?  
 M-Pa-T-4: infradental papillae, position: lateral, close to dental plate  
 M-Pa-T-5: Adoral shield spine shape : spiniform  
 M-Pa-T-6: Second degree ASS, position: at 2nd tenacle pore  
 M-Pa-T-7: Additional lateral papillae, shape: spiniform  
 M-Pa-T-8: Teeth, shape: spine-like, thin and sharply pointed  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : comma-shaped  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : not possible  
 VI-2: Ventral interradii, covering : with spines  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Ophiochiton fastigatus*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: oval semi-circular  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : ?  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: almost beyond zygocondyles (e.g.. Ophiodoris)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion

A-VP-7: Lateral edge of proximalmost VAPs (macrated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : cleaver-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : condylar process  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : scalene triangular  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Vento-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : along most of the edge  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
 LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. *Amphiura*)  
 LAP-SA-15: Dorsal and ventral lobes, shape: straight  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : middle spine art. larger  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : dorsal half widest  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madreporite size : larger than remaining oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute to right angle with convex to straight sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: oblique in mouth slit  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present

OR-GP-2: Oral GP, shape : ?  
OR-GP-3: Rectangular oral GP, details : ?  
OR-GP-4: Oval oral GP, details : ?  
VI-2: Ventral interradii, covering : naked  
VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Ophiocopa spatula*

A-DP-10: Spurs at proximal edge of DAP (macerated): : absent  
A-DP-11: Accessory dorsal arm plates: : absent  
A-DP-2: DAPs per segment, number: : single  
A-DP-3: Proximal DAP series, position: : separated  
A-DP-4: Proximal DAPs, shape: : fan-shaped  
A-DP-8: Proximal DAPs, ornamentation: : tuberculous  
A-G-2: Integument of arms structure: : naked  
A-G-3: Arms shape: : simple  
A-S-10: Hook-shaped arm spines, position: : at no segments  
A-S-11: Hook-shaped spines shape : not possible  
A-S-13: Arm spines, size pattern: : dorsalmost spine(s) longest  
A-S-14: Arm spines at proximal to median arm segments, number changes: : decreasing distalwards  
A-S-1: Arm spine position : lateral  
A-S-2: Arm spines, orientation: : predominantly erect, standing perpendicular to arm  
A-S-3: Longest spine, length: : longer than 2 segments  
A-S-4: Arm spine interior structure : with lumen  
A-S-5: Arm spine surface ornamentation: : with lateral thorns  
A-S-7: Arm spine, cross section shape: : laterally flattened  
A-S-8: Tip of arm spines shape: : blunt  
A-TS-3: Tentacle scales, shape: : operculiform/round to oval  
A-TS-4: Tentacle scales, size: : accurately closing tentacle pore or larger  
A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
A-TS-6: Tentacle scale placement : only at LAP  
A-V-1: Dorso-distal muscular fossae, distalwards projection: : far from distal edge of zygocondyles (e.g. Ophiacantha)  
A-V-2: Lateral saddle between muscular fossae structure: : with single ridge  
A-V-4: Zygocondyles in proximal vertebrae position: : nearly parallel  
A-V-6: Zygosphene fused with pair of zygocondyles size: : not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
A-V-7: Needle-like thorns in dorsal groove : absent  
A-VP-10: Proximal VAPs ornamentation: : with tubercles or striation  
A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
A-VP-3: Proximal VAPs (in articulated plating), position: : separated by lateral arm plates  
A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: : convex to straight  
A-VP-5: Proximal edge of proximal VAPs (macerated) shape: : convex to straight  
A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: : wider than proximal portion  
A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: : with clear incisisions/notches for tentacle  
A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): : absent  
AB-GP-10: Conspicuous perforation in adradial surface of abGP: : present  
AB-GP-11: Longitudinal groove in abradial surface: : absent  
AB-GP-12: distalmost genital papillae (on dorsal disc), shape: : ?  
AB-GP-13: Abradial GP crosses adradial GP : no  
AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
AB-GP-2: Abradial genital plate shape : thin curved scale  
AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
AB-GP-6: Abradial genital plate covering : fully covered  
AB-GP-7: AbGP plate papillae/granules, nature: : ?  
AB-GP-8: AbGP papillae, extension: : ?  
AB-GP-9: Ventral genital papillae, shape : ?  
AD-GP-1: Adradial GP shape : bar-like  
AD-GP-2: AdGP to RS articular structures, shape : single condyle

AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: : with granules only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : smooth patch  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: : less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: : in contact over entire length  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: : distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: : round, flat  
 LAP-G-1: LAPs, position: : arched  
 LAP-G-3: LAPs with constriction: : present  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: : present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): : absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: : like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: : vertical row with furrow  
 LAP-I-1: Inner side of LAP, main structure: : more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: : with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: : more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: : with two kinks and dorsal tip with ventro-proximalwards pointing projection  
 LAP-I-7: Large dorsal contact surface with opposite LAP: : absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: : not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: : absent  
 LAP-O-2: Outer surface trabecular intersections, shape: : protruding to form knobs larger than stereom pores on small part of outer surface of LAP  
 LAP-O-8: Outer surface, structure: : vertical striation formed by regular ridges  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: : not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: : elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: : not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
 LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: : shifted (e.g. Ophiacantha)  
 LAP-SA-15: Dorsal and ventral lobes, shape: : at least one lobe bent  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: : with perforations  
 LAP-SA-17: Lobes, orientation on plate: : tilted  
 LAP-SA-19: Sigmoidal fold, expression: : fully developed

LAP-SA-1: Spine articulations, position: : on elevated portion bordered prox. by ridge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: : not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: : not possible  
LAP-SA-4: Spine articulation, separation from distal edge: : separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : dorsalwards increasing  
LAP-SA-7: Spine articulations, distance: : dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: : by small ridge if at all  
LAP-SA-9: Nerve opening, size: : smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: : notch  
LAP-TP-2: Tentacle notch, direction: : ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
M-DP-1: Dental plate : several pieces  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: : single column throughout  
M-DP-5: Tooth sockets, predominant shape: : surrounded by separate, weakly protruding knobs and/or ridges  
M-DP-7: Tooth sockets, depth: : depression or perforating DP without septum  
M-OAS-1: Oral shield length : longer than one third of length of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madreporite size : similar to other oral shields  
M-OAS-4: Madreporite inner side, structure: : 1–2 openings  
M-OAS-5: Madreporite inner opening, position: : central  
M-OAS-6: Adoral shields proximity: : meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: : central depression  
M-OP-3: Abradial muscle attachment area stereom structure: : normal stereom  
M-OP-4: Adradial muscle attachment area position: : ventral, lining ventral or ventro-distal edge of articulation area  
M-Pa-T-12: Tooth papillae, number: : ?  
M-Pa-T-10: Second degree adoral shield spine, number: : single  
M-Pa-T-11: Lyman's ossicle, position: : ?  
M-Pa-T-13: Accessory oral papillae: : absent  
M-Pa-T-1: Lateral papillae, arrangement: : single row along jaw edge  
M-Pa-T-2: Ventralmost tooth, position: : exposed  
M-Pa-T-3: Buccal scale, shape: : ?  
M-Pa-T-4: infradental papillae, position: : lateral, close to dental plate  
M-Pa-T-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
M-Pa-T-6: Second degree ASS, position: : at oral plate  
M-Pa-T-7: Additional lateral papillae, shape: : rounded  
M-Pa-T-8: Teeth, shape: : with square tip  
M-Pa-T-9: Infradental papillae, relative size: : similar to other oral papillae  
M-SP-1: Second tentacle pore position : deep inside mouth slit  
OR-GP-1: Oral GP : present  
OR-GP-2: Oral GP, shape : oval  
OR-GP-3: Rectangular oral GP, details : not possible  
OR-GP-4: Oval oral GP, details : ?  
VI-2: Ventral interradii, covering : naked  
VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiocoma echinata*

A-DP-10: Spurs at proximal edge of DAP (macerated): present



A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: longer than 2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with scale-like tubercles  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: present  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent

D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : incised/irregular  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
 LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
 LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
 LAP-SA-17: Lobes, orientation on plate: tilted  
 LAP-SA-19: Sigmoidal fold, expression: fully developed  
 LAP-SA-1: Spine articulations, position: on elevation not bordered by ridge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : dorsalwards increasing  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
 M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: flange over most of lateral surface, with striations  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

#### *Ophiocoma scolopendrina*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: longer than 2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with scale-like tubercles

A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: present  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : incised/irregular  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent

LAP-G-7: First LAPs, shape: like following LAPs

LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible

LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous

LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge

LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP

LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom

LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection

LAP-I-7: Large dorsal contact surface with opposite LAP: absent

LAP-I-8: Large ventral contact surface with opposite LAP : absent

LAP-I-9: Two central knobs on inner side of LAP, shape: not possible

LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent

LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP

LAP-O-8: Outer surface, structure: normal stereom

LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection

LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)

LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent

LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive

LAP-SA-17: Lobes, orientation on plate: nearly horizontal

LAP-SA-19: Sigmoidal fold, expression: fully developed

LAP-SA-1: Spine articulations, position: on elevation not bordered by ridge

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge

LAP-SA-6: Spine art. size : dorsalwards increasing

LAP-SA-7: Spine articulations, distance: dorsalwards increasing

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: smaller than muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : no

M-DP-1: Dental plate : entire

M-DP-2: Dental plate geometry : equal width all over

M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate

M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges

M-DP-7: Tooth sockets, depth: at least some perforating DP with septum

M-OAS-1: Oral shield length : covering less than one third of interradius

M-OAS-2: Oral shield shape : longer than wide

M-OAS-3: Madreporite size : similar to other oral shields

M-OAS-4: Madreporite inner side, structure: 1-2 openings

M-OAS-5: Madreporite inner opening, position: distal

M-OAS-6: Adoral shields proximity: separated

M-OAS-8: Oral shield proximal portion shape : evenly convex

M-OAS-9: Oral shield distal portion shape : evenly convex

M-OP-1: Oral plate shape : as high as long or higher

M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: flange over most of lateral surface, with striations  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : L-shaped  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : not possible  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiocomina nigra*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: longer than 2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: leaf-like blunt  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent

A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : thin curved scale  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : 2 condyles  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales  
 (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: present  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row with furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent

LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores

LAP-O-8: Outer surface, structure: vertical striation formed by regular ridges

LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection

LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)

LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent

LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations

LAP-SA-17: Lobes, orientation on plate: tilted

LAP-SA-19: Sigmoidal fold, expression: fully developed

LAP-SA-1: Spine articulations, position: on elevated portion bordered prox. by ridge

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge

LAP-SA-6: Spine art. size : dorsalwards increasing

LAP-SA-7: Spine articulations, distance: dorsalwards increasing

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: smaller than muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes

M-DP-1: Dental plate : entire

M-DP-2: Dental plate geometry : ventral half widest

M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate

M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring

M-DP-7: Tooth sockets, depth: depression or perforating DP without septum

M-OAS-1: Oral shield length : covering less than one third of interradius

M-OAS-2: Oral shield shape : wider than long

M-OAS-3: Madreporite size : larger than remaining oral shields

M-OAS-4: Madreporite inner side, structure: 1-2 openings

M-OAS-5: Madreporite inner opening, position: distal

M-OAS-6: Adoral shields proximity: meeting proximal to oral shield

M-OAS-8: Oral shield proximal portion shape : obtuse angle with concave sides

M-OAS-9: Oral shield distal portion shape : evenly convex

M-OP-1: Oral plate shape : longer than high

M-OP-2: Abradial muscle fossa shape: central depression

M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area

M-Pa-T-12: Tooth papillae, number: >2

M-PaT-10: Second degree adoral shield spine, number: single

M-PaT-11: Lyman's ossicle, position: oblique in mouth slit

M-PaT-13: Accessory oral papillae: absent

M-PaT-1: Lateral papillae, arrangement: single row along jaw edge

M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae

M-PaT-3: Buccal scale, shape: ?

M-PaT-4: infradental papillae, position: lateral, close to dental plate

M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae

M-PaT-6: Second degree ASS, position: at oral plate



M-PaT-7: Additional lateral papillae, shape: spiniform  
M-PaT-8: Teeth, shape: with square tip  
M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
M-SP-1: Second tentacle pore position : deep inside mouth slit  
OR-GP-1: Oral GP : present  
OR-GP-2: Oral GP, shape : drop-shaped  
OR-GP-3: Rectangular oral GP, details : not possible  
OR-GP-4: Oval oral GP, details : not possible  
VI-2: Ventral interradii, covering : naked  
VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Ophiocten sericeum*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
A-DP-11: Accessory dorsal arm plates: absent  
A-DP-2: DAPs per segment, number: single  
A-DP-3: Proximal DAP series, position: in contact  
A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
A-G-2: Integument of arms structure: naked  
A-G-3: Arms shape: simple  
A-S-10: Hook-shaped arm spines, position: at no segments  
A-S-11: Hook-shaped spines shape : not possible  
A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
A-S-1: Arm spine position : lateral  
A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
A-S-3: Longest spine, length: 1-2 segments  
A-S-4: Arm spine interior structure : massive  
A-S-5: Arm spine surface ornamentation: smooth  
A-S-7: Arm spine, cross section shape: round  
A-S-8: Tip of arm spines shape: pointed  
A-TS-3: Tentacle scales, shape: leaf-like blunt  
A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
A-TS-6: Tentacle scale placement : only at LAP  
A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part longer than zygoc.  
A-V-7: Needle-like thorns in dorsal groove : absent  
A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised  
A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
AB-GP-11: Longitudinal groove in abradial surface: absent  
AB-GP-12: distalmost genital papillae (on dorsal disc), shape: spine-like  
AB-GP-13: Abradial GP crosses adradial GP : no  
AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
AB-GP-2: Abradial genital plate shape : cup-shaped  
AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex

AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: papillae  
 AB-GP-8: AbGP papillae, extension: extending to latero-dorsal disc edge  
 AB-GP-9: Ventral genital papillae, shape : spine-like  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: ridge separated into two halves  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: vertical striation formed by regular ridges  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
 LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible

LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: in notches of distal LAP edge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : vertical mouth-shaped, sharply defined elevation  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: vertical  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: slender  
 LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by a thin projection of the distal LAP portion (e.g. Ophiomyces)  
 LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
 LAP-SA-6: Spine art. size : all similar  
 LAP-SA-7: Spine articulations, distance: ventralwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: distalwards, close to horizontal midline of LAP  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: multiple columns throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : longer than one third of length of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute to right angle with convex to straight sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-Pa-T-10: Second degree adoral shield spine, number: multiple  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: ?  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: exposed  
 M-Pa-T-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-Pa-T-4: infradental papillae, position: lateral, at distance from dental plate  
 M-Pa-T-5: Adoral shield spine shape : scale-like or like other papillae  
 M-Pa-T-6: Second degree ASS, position: at 2nd tenacle pore  
 M-Pa-T-7: Additional lateral papillae, shape: block-shaped  
 M-Pa-T-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Ophioderma longicaudum*

A-DP-10: Spurs at proximal edge of DAP (macerated): present  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: multiple  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (addressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with scale-like tubercles  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : present  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: present  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : trapezoid to rectangular  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : 2 condyles  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles

D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isosceles triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : incised/irregular  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 large (wider than 1/4 of LAP width)  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
 LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
 LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
 LAP-SA-17: Lobes, orientation on plate: tilted  
 LAP-SA-19: Sigmoidal fold, expression: weakly developed  
 LAP-SA-1: Spine articulations, position: in notches of distal LAP edge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : ventralwards increasing  
 LAP-SA-7: Spine articulations, distance: equidistant  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : several pieces  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madrepore size : similar to other oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: distal  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: present  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: rounded  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : comma-shaped  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : not possible  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophioderma africanum*

A-DP-10: Spurs at proximal edge of DAP (macrated): present  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment

A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with scale-like tubercles  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : present  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: present  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : trapezoid to rectangular  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : 2 condyles  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isosceles triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : with extension(s) (regular outline enlarged)  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Vento-proximalwards projection of ventral portion of LAP: present

LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: entire  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 large (wider than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: weakly developed  
LAP-SA-1: Spine articulations, position: in notches of distal LAP edge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : ventralwards increasing  
LAP-SA-7: Spine articulations, distance: equidistant  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : several pieces  
M-DP-2: Dental plate geometry : ventral half widest  
M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madrepore size : similar to other oral shields  
M-OAS-4: Madrepore inner side, structure: 1–2 openings  
M-OAS-5: Madrepore inner opening, position: distal  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : evenly convex



M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: rounded  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiodoris malignus*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: oval semi-circular  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: almost beyond zygocondyles (e.g.. *Ophiodoris*)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation

A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: disc granules  
 AB-GP-8: AbGP papillae, extension: restricted to ventral disc  
 AB-GP-9: Ventral genital papillae, shape : granule-like  
 AD-GP-1: Adradial GP shape : cleaver-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : scalene triangular  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent

LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP

LAP-O-8: Outer surface, structure: normal stereom

LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom

LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. *Amphiura*)

LAP-SA-15: Dorsal and ventral lobes, shape: straight

LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations

LAP-SA-17: Lobes, orientation on plate: nearly horizontal

LAP-SA-19: Sigmoidal fold, expression: ?

LAP-SA-1: Spine articulations, position: on same level as remaining outer surface

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge

LAP-SA-6: Spine art. size : middle spine art. larger

LAP-SA-7: Spine articulations, distance: dorsalwards increasing

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: smaller than muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes

M-DP-1: Dental plate : entire

M-DP-2: Dental plate geometry : equal width all over

M-DP-3: Tooth sockets, pattern: single column throughout

M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges

M-DP-7: Tooth sockets, depth: depression or perforating DP without septum

M-OAS-1: Oral shield length : covering less than one third of interradius

M-OAS-2: Oral shield shape : as long as wide

M-OAS-3: Madreporite size : similar to other oral shields

M-OAS-4: Madreporite inner side, structure: ?

M-OAS-5: Madreporite inner opening, position: ?

M-OAS-6: Adoral shields proximity: separated

M-OAS-8: Oral shield proximal portion shape : evenly convex

M-OAS-9: Oral shield distal portion shape : with narrower distalward projection

M-OP-1: Oral plate shape : longer than high

M-OP-2: Abradial muscle fossa shape: central depression

M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area

M-Pa-T-12: Tooth papillae, number: ?

M-Pa-T-10: Second degree adoral shield spine, number: single

M-Pa-T-11: Lyman's ossicle, position: in line with other papillae

M-Pa-T-13: Accessory oral papillae: absent

M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge

M-Pa-T-2: Ventralmost tooth, position: exposed

M-Pa-T-3: Buccal scale, shape: smaller papilla (*Ophiura*)

M-Pa-T-4: infradental papillae, position: lateral, close to dental plate

M-Pa-T-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae

M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

*Ophiolepis superba*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: present  
 A-DP-2: DAPs per segment, number: multiple  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygocond. or projecting beyond ventral edge of zygocond. with projecting part shorter than zygocond.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : triangular to pear-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave

AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : cleaver-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : thick scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 large (wider than 1/4 of LAP width)  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
 LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)

LAP-SA-15: Dorsal and ventral lobes, shape: straight  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: in notches of distal LAP edge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : middle spine art. larger  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : dorsal half widest  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

*Ophiolepis variegata*

A-DP-10: Spurs at proximal edge of DAP (macerated): present  
 A-DP-11: Accessory dorsal arm plates: present  
 A-DP-2: DAPs per segment, number: multiple  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: only at distal segments  
 A-S-11: Hook-shaped spines shape : regular spines with bent tip and/or saw-toothed edge  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (addressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : ?  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : present  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : triangular to pear-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : cleaver-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : thick scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles

D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
D-P-6: Primary radial plates relative size : larger than scales  
D-P-7: Primary radial plates position : at a distance from CPP  
D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
D-RS-11: RS distal edge shape : other shape  
D-RS-12: Conspicuous pore in inner side of RS : absent  
D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
D-RS-6: Radial shield abradial edge shape : entire  
D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
D-RS-9: Muscle attachment area on RS, shape: round, flat  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: entire  
LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 large (wider than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiuira)  
LAP-SA-15: Dorsal and ventral lobes, shape: straight  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: in notches of distal LAP edge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
LAP-SA-6: Spine art. size : middle spine art. larger  
LAP-SA-7: Spine articulations, distance: equidistant  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch



LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : dorsal half widest  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madrepore size : similar to other oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: central  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : pyramid-like raised  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Ophioleuce seminudum*

A-DP-10: Spurs at proximal edge of DAP (macrated): present  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: with striation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)

A-S-3: Longest spine, length: between half a segment and one segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : ?  
 AB-GP-1: Abradial genital plate relative length : ?  
 AB-GP-2: Abradial genital plate shape : ?  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: disc granules  
 AB-GP-8: AbGP papillae, extension: restricted to ventral disc  
 AB-GP-9: Ventral genital papillae, shape : granule-like  
 AD-GP-1: Adradial GP shape : ?  
 AD-GP-2: AdGP to RS articular structures, shape : ?  
 AD-GP-3: Bar-like adGP subtypes, shape : ?  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : scalene triangular  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal-abradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched

LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: present  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
LAP-O-8: Outer surface, structure: vertical striation formed by merged knobs  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : along most of the edge  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
LAP-SA-17: Lobes, orientation on plate: nearly vertical  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by a thin projection of the distal LAP portion (e.g. Ophiomyces)  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : ventralwards increasing  
LAP-SA-7: Spine articulations, distance: only 2  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : ventral half widest  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: simple opening  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : longer than wide  
M-OAS-3: Madreporite size : similar to other oral shields

M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-Pa-T-10: Second degree adoral shield spine, number: single  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: absent  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-Pa-T-3: Buccal scale, shape: ?  
 M-Pa-T-4: infradental papillae, position: lateral, close to dental plate  
 M-Pa-T-5: Adoral shield spine shape : scale-like or like other papillae  
 M-Pa-T-6: Second degree ASS, position: at oral plate  
 M-Pa-T-7: Additional lateral papillae, shape: ?  
 M-Pa-T-8: Teeth, shape: spine-like, thin and sharply pointed  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiernus vallingcola*

A-DP-10: Spurs at proximal edge of DAP (macrated): present  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: almost beyond zygocondyles (e.g.. Ophiodoris)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel

A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.

A-V-7: Needle-like thorns in dorsal groove : absent

A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation

A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent

A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact

A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight

A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight

A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion

A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle

A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent

AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent

AB-GP-11: Longitudinal groove in abradial surface: absent

AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?

AB-GP-13: Abradial GP crosses adradial GP : no

AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length

AB-GP-2: Abradial genital plate shape : blade-like straight

AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave

AB-GP-6: Abradial genital plate covering : fully covered

AB-GP-7: AbGP plate papillae/granules, nature: ?

AB-GP-8: AbGP papillae, extension: ?

AB-GP-9: Ventral genital papillae, shape : ?

AD-GP-1: Adradial GP shape : bar-like

AD-GP-2: AdGP to RS articular structures, shape : single condyle

AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated

AD-GP-4: Additional structures on adGP, shape : process

D-GS-1: Dorsal disc covering, nature: with granules only

D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin

D-GS-5: Radial shield granule/spine covering : naked

D-GS-6: Dorsal disc granules/spines differentiation : uniform

D-P-1: Dorsal disc scalation : few thin scales

D-P-3: Dorsal disc scale size : variable

D-P-4: Dorsal disc scale stereom structure : no tubercles

D-P-5: Central primary plate relative size : ?

D-P-6: Primary radial plates relative size : ?

D-P-7: Primary radial plates position : ?

D-RS-10: RS articulation shape : two condyles/spurs with depression between them

D-RS-11: RS distal edge shape : other shape

D-RS-12: Conspicuous pore in inner side of RS : absent

D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius

D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated

D-RS-5: Radial shield shape : isoscele triangular to pear-shaped

D-RS-6: Radial shield abradial edge shape : entire

D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed

D-RS-9: Muscle attachment area on RS, shape: ?

LAP-G-1: LAPs, position: arched

LAP-G-3: LAPs with constriction: present

LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent

LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent

LAP-G-6: Dorsal edge distalwards ascending : absent

LAP-G-7: First LAPs, shape: like following LAPs

LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible

LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous

LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge

LAP-I-3: Ridge on inner side of LAP, shape: entire

LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP

LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip

LAP-I-7: Large dorsal contact surface with opposite LAP: absent

LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : along most of the edge  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by a thin projection of the distal LAP portion (e.g. Ophiomyces)  
LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: equidistant  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: simple opening  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madreporite size : similar to other oral shields  
M-OAS-4: Madreporite inner side, structure: 1–2 openings  
M-OAS-5: Madreporite inner opening, position: central  
M-OAS-6: Adoral shields proximity: separated  
M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides  
M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
M-Pa-T-12: Tooth papillae, number: 2  
M-Pa-T-10: Second degree adoral shield spine, number: single  
M-Pa-T-11: Lyman's ossicle, position: ?  
M-Pa-T-13: Accessory oral papillae: absent  
M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
M-Pa-T-2: Ventralmost tooth, position: exposed

M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiolycus purpureus*

A-DP-10: Spurs at proximal edge of DAP (macrated): ?  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: only at distal segments  
 A-S-11: Hook-shaped spines shape : true, hyaline hook  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: spine-like  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macrated) : ?  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macrated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macrated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macrated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macrated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?

AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: with spines only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : no special structure  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : bar-like  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: completely covered by scales  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: present  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)



LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
 LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
 LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
 LAP-SA-17: Lobes, orientation on plate: tilted  
 LAP-SA-19: Sigmoidal fold, expression: weakly developed  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : dorsalwards increasing  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : ventral half widest  
 M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madrepore size : larger than remaining oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: distal  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : obtuse angle with concave sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : ?  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: spiniform  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : flat  
 VI-2: Ventral interradii, covering : with spines

VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

*Ophiomusa lymani*

- A-DP-10: Spurs at proximal edge of DAP (macerated): absent
- A-DP-11: Accessory dorsal arm plates: absent
- A-DP-2: DAPs per segment, number: single
- A-DP-3: Proximal DAP series, position: separated
- A-DP-4: Proximal DAPs, shape: fan-shaped
- A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation
- A-G-2: Integument of arms structure: naked
- A-G-3: Arms shape: simple
- A-S-10: Hook-shaped arm spines, position: at no segments
- A-S-11: Hook-shaped spines shape : not possible
- A-S-13: Arm spines, size pattern: ventralmost spine(s) longest
- A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards
- A-S-1: Arm spine position : lateral
- A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)
- A-S-3: Longest spine, length: shorter than half a segment
- A-S-4: Arm spine interior structure : massive
- A-S-5: Arm spine surface ornamentation: smooth
- A-S-7: Arm spine, cross section shape: round
- A-S-8: Tip of arm spines shape: blunt
- A-TS-3: Tentacle scales, shape: operculiform/round to oval
- A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger
- A-TS-5: Tentacle scales ornamentation : without longitudinal striation
- A-TS-6: Tentacle scale placement : only at LAP
- A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting
- A-V-2: Lateral saddle between muscular fossae structure: with single ridge
- A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging
- A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.
- A-V-7: Needle-like thorns in dorsal groove : absent
- A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation
- A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent
- A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates
- A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight
- A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight
- A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion
- A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle
- A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent
- AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent
- AB-GP-11: Longitudinal groove in abradial surface: absent
- AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?
- AB-GP-13: Abradial GP crosses adradial GP : no
- AB-GP-1: Abradial genital plate relative length : as long as adradial plate
- AB-GP-2: Abradial genital plate shape : trapezoid to rectangular
- AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex
- AB-GP-6: Abradial genital plate covering : exposed
- AB-GP-7: AbGP plate papillae/granules, nature: ?
- AB-GP-8: AbGP papillae, extension: ?
- AB-GP-9: Ventral genital papillae, shape : ?
- AD-GP-1: Adradial GP shape : bar-like
- AD-GP-2: AdGP to RS articular structures, shape : condylar process
- AD-GP-3: Bar-like adGP subtypes, shape : distally inflated
- AD-GP-4: Additional structures on adGP, shape : process
- D-GS-1: Dorsal disc covering, nature: without granules/spines

D-GS-2: Dorsal disc granules/spines extension : not possible  
D-GS-5: Radial shield granule/spine covering : naked  
D-GS-6: Dorsal disc granules/spines differentiation : not possible  
D-P-1: Dorsal disc scalation : thick scales  
D-P-3: Dorsal disc scale size : variable  
D-P-4: Dorsal disc scale stereom structure : no tubercles  
D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
D-P-6: Primary radial plates relative size : larger than scales  
D-P-7: Primary radial plates position : at a distance from CPP  
D-RS-10: RS articulation shape : one condyle  
D-RS-11: RS distal edge shape : groove and lip-shaped edge  
D-RS-12: Conspicuous pore in inner side of RS : absent  
D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
D-RS-6: Radial shield abradial edge shape : entire  
D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
D-RS-9: Muscle attachment area on RS, shape: round, flat  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : present  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: entire  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : more than two small (shorter than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: like surrounding stereom  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: denticulate  
LAP-SA-12: Dorsal and ventral lobes connection : not possible  
LAP-SA-13: Dorsal and ventral lobe size : not possible  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
LAP-SA-17: Lobes, orientation on plate: not possible  
LAP-SA-19: Sigmoidal fold, expression: not possible  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : vertical mouth-shaped, sharply defined elevation  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: oblique  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: thick, lip-shaped and strongly protruding

LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: equidistant  
LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: within-plate perforation  
LAP-TP-2: Tentacle notch, direction: ventralwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : yes  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : dorsal half widest  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : longer than one third of length of interradius  
M-OAS-2: Oral shield shape : longer than wide  
M-OAS-3: Madreporite size : similar to other oral shields  
M-OAS-4: Madreporite inner side, structure: 1–2 openings  
M-OAS-5: Madreporite inner opening, position: central  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
M-OAS-9: Oral shield distal portion shape : square  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
M-Pa-T-12: Tooth papillae, number: ?  
M-PaT-10: Second degree adoral shield spine, number: single  
M-PaT-11: Lyman's ossicle, position: ?  
M-PaT-13: Accessory oral papillae: present  
M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
M-PaT-2: Ventralmost tooth, position: exposed  
M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
M-PaT-4: infradental papillae, position: lateral, at distance from dental plate  
M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
M-PaT-6: Second degree ASS, position: at oral plate  
M-PaT-7: Additional lateral papillae, shape: ?  
M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
M-SP-1: Second tentacle pore position : deep inside mouth slit  
OR-GP-1: Oral GP : absent  
OR-GP-2: Oral GP, shape : ?  
OR-GP-3: Rectangular oral GP, details : ?  
OR-GP-4: Oval oral GP, details : ?  
VI-2: Ventral interradii, covering : naked  
VI-3: Genital slit length : shorter than half interradius

=====

### *Ophiomyces delata*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
A-DP-11: Accessory dorsal arm plates: absent  
A-DP-2: DAPs per segment, number: single  
A-DP-3: Proximal DAP series, position: separated  
A-DP-4: Proximal DAPs, shape: fan-shaped  
A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
A-G-2: Integument of arms structure: naked

A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorsal-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): present  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : blade-like, straight (excluding distal tip curving dorsal)  
 AD-GP-2: AdGP to RS articular structures, shape : ?  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: with spines only  
 D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin  
 D-GS-5: Radial shield granule/spine covering : ?  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : few thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?

D-RS-3: Radial shields (in articulated disc plating), length: ?  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: ?  
D-RS-5: Radial shield shape : ?  
D-RS-6: Radial shield abradial edge shape : ?  
D-RS-7: Radial shield, exposure: ?  
D-RS-9: Muscle attachment area on RS, shape: ?  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: vertical row with furrow  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
LAP-O-8: Outer surface, structure: vertical striation formed by regular ridges  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
LAP-SA-17: Lobes, orientation on plate: nearly vertical  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by a thin projection of the distal LAP portion (e.g. Ophiomyces)  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : ventralwards increasing  
LAP-SA-7: Spine articulations, distance: equidistant  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : ventral half widest

M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: simple opening  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madrepore size : similar to other oral shields  
 M-OAS-4: Madrepore inner side, structure: several pores  
 M-OAS-5: Madrepore inner opening, position: central  
 M-OAS-6: Adoral shields proximity: separated  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: multiple rows covering jaws  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : spiniform  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: spiniform  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with spines  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiomyxa pentagona*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: only at distal segments  
 A-S-11: Hook-shaped spines shape : regular spines with bent tip and/or saw-toothed edge  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: blunt

A-TS-3: Tentacle scales, shape: ?  
 A-TS-4: Tentacle scales, size: ?  
 A-TS-5: Tentacle scales ornamentation : ?  
 A-TS-6: Tentacle scale placement : ?  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : very few thin small scales or none  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : smooth patch  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : bar-like  
 D-RS-6: Radial shield abradial edge shape : with extension(s) (regular outline enlarged)  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible



LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : no discernible band of different stereom  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: weakly developed  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : ventralwards increasing  
LAP-SA-7: Spine articulations, distance: equidistant  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : several pieces  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madrepore size : larger than remaining oral shields  
M-OAS-4: Madrepore inner side, structure: 1–2 openings  
M-OAS-5: Madrepore inner opening, position: distal  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : evenly convex  
M-OAS-9: Oral shield distal portion shape : evenly convex  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
M-Pa-T-12: Tooth papillae, number: ?

M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: oblique in mouth slit  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: block-shaped  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : comma-shaped  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : not possible  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiomyxa serpentaria*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: only at distal segments  
 A-S-11: Hook-shaped spines shape : regular spines with bent tip and/or saw-toothed edge  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: flat, elongated  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle

A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : very few thin small scales or none  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : smooth patch  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : bar-like  
 D-RS-6: Radial shield abradial edge shape : incised/irregular  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : no discernible band of different stereom  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection

LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)

LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent

LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations

LAP-SA-17: Lobes, orientation on plate: tilted

LAP-SA-19: Sigmoidal fold, expression: weakly developed

LAP-SA-1: Spine articulations, position: on same level as remaining outer surface

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge

LAP-SA-6: Spine art. size : ventralwards increasing

LAP-SA-7: Spine articulations, distance: equidistant

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: approx. as large as muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : no

M-DP-1: Dental plate : several pieces

M-DP-2: Dental plate geometry : equal width all over

M-DP-3: Tooth sockets, pattern: single column throughout

M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring

M-DP-7: Tooth sockets, depth: depression or perforating DP without septum

M-OAS-1: Oral shield length : covering less than one third of interradius

M-OAS-2: Oral shield shape : wider than long

M-OAS-3: Madrepore size : larger than remaining oral shields

M-OAS-4: Madrepore inner side, structure: 1–2 openings

M-OAS-5: Madrepore inner opening, position: distal

M-OAS-6: Adoral shields proximity: separated

M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides

M-OAS-9: Oral shield distal portion shape : evenly convex

M-OP-1: Oral plate shape : longer than high

M-OP-2: Abradial muscle fossa shape: central depression

M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area

M-Pa-T-12: Tooth papillae, number: ?

M-PaT-10: Second degree adoral shield spine, number: ?

M-PaT-11: Lyman's ossicle, position: oblique in mouth slit

M-PaT-13: Accessory oral papillae: ?

M-PaT-1: Lateral papillae, arrangement: single row along jaw edge

M-PaT-2: Ventralmost tooth, position: exposed

M-PaT-3: Buccal scale, shape: ?

M-PaT-4: infradental papillae, position: lateral, close to dental plate

M-PaT-5: Adoral shield spine shape : scale-like or like other papillae

M-PaT-6: Second degree ASS, position: ?

M-PaT-7: Additional lateral papillae, shape: block-shaped

M-PaT-8: Teeth, shape: with square tip

M-PaT-9: Infradental papillae, relative size: larger than other oral papillae

M-SP-1: Second tentacle pore position : deep inside mouth slit

OR-GP-1: Oral GP : present

OR-GP-2: Oral GP, shape : comma-shaped

OR-GP-3: Rectangular oral GP, details : not possible

OR-GP-4: Oval oral GP, details : not possible

VI-2: Ventral interradii, covering : naked  
VI-3: Genital slit length : longer than half interradius or divided into two openings

=====  
*Ophionereis porrecta*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
A-DP-11: Accessory dorsal arm plates: present  
A-DP-2: DAPs per segment, number: multiple  
A-DP-3: Proximal DAP series, position: in contact  
A-DP-4: Proximal DAPs, shape: oval semi-circular  
A-DP-8: Proximal DAPs, ornamentation: tuberculous  
A-G-2: Integument of arms structure: naked  
A-G-3: Arms shape: simple  
A-S-10: Hook-shaped arm spines, position: at no segments  
A-S-11: Hook-shaped spines shape : not possible  
A-S-13: Arm spines, size pattern: median spine(s) longest  
A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
A-S-1: Arm spine position : lateral  
A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
A-S-3: Longest spine, length: 1-2 segments  
A-S-4: Arm spine interior structure : massive  
A-S-5: Arm spine surface ornamentation: smooth  
A-S-7: Arm spine, cross section shape: round  
A-S-8: Tip of arm spines shape: pointed  
A-TS-3: Tentacle scales, shape: operculiform/round to oval  
A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
A-TS-6: Tentacle scale placement : at both LAP and VAP  
A-V-1: Dorso-distal muscular fossae, distalwards projection: beyond zygocondyles (e.g. Ophiothrix)  
A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
A-V-7: Needle-like thorns in dorsal groove : absent  
A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
AB-GP-11: Longitudinal groove in abradial surface: absent  
AB-GP-12: distalmost genital papillae (on dorsal disc), shape: spine-like  
AB-GP-13: Abradial GP crosses adradial GP : yes  
AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
AB-GP-2: Abradial genital plate shape : blade-like straight  
AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
AB-GP-6: Abradial genital plate covering : fully covered  
AB-GP-7: AbGP plate papillae/granules, nature: disc granules  
AB-GP-8: AbGP papillae, extension: restricted to ventral disc  
AB-GP-9: Ventral genital papillae, shape : granule-like  
AD-GP-1: Adradial GP shape : cleaver-shaped  
AD-GP-2: AdGP to RS articular structures, shape : condylar process  
AD-GP-3: Bar-like adGP subtypes, shape : not possible  
AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
D-GS-1: Dorsal disc covering, nature: without granules/spines

D-GS-2: Dorsal disc granules/spines extension : not possible  
D-GS-5: Radial shield granule/spine covering : naked  
D-GS-6: Dorsal disc granules/spines differentiation : not possible  
D-P-1: Dorsal disc scalation : many thin scales  
D-P-3: Dorsal disc scale size : variable  
D-P-4: Dorsal disc scale stereom structure : no tubercles  
D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
D-P-7: Primary radial plates position : not possible  
D-RS-10: RS articulation shape : one condyle  
D-RS-11: RS distal edge shape : groove and lip-shaped edge  
D-RS-12: Conspicuous pore in inner side of RS : absent  
D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
D-RS-5: Radial shield shape : scalene triangular  
D-RS-6: Radial shield abradial edge shape : entire  
D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
D-RS-9: Muscle attachment area on RS, shape: round, flat  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)  
LAP-SA-15: Dorsal and ventral lobes, shape: straight  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : middle spine art. larger  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : dorsal half widest  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: 1–2 openings  
 M-OAS-5: Madreporite inner opening, position: distal  
 M-OAS-6: Adoral shields proximity: separated  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: with large, dorsal, spoon-shaped depression  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophionereis reticulata*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: present  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: ?

A-S-11: Hook-shaped spines shape : ?  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: beyond zygocondyles (e.g. Ophiothrix)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphenes fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : yes  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: disc granules  
 AB-GP-8: AbGP papillae, extension: restricted to ventral disc  
 AB-GP-9: Ventral genital papillae, shape : granule-like  
 AD-GP-1: Adradial GP shape : cleaver-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : condylar process  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : scalene triangular  
 D-RS-6: Radial shield abradial edge shape : with extension(s) (regular outline enlarged)



D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: entire  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: ?  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
 LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)  
 LAP-SA-15: Dorsal and ventral lobes, shape: straight  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : ventralwards increasing  
 LAP-SA-7: Spine articulations, distance: equidistant  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : dorsal half widest  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: 1–2 openings

M-OAS-5: Madreporite inner opening, position: distal  
 M-OAS-6: Adoral shields proximity: separated  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: with large, dorsal, spoon-shaped depression  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : flat  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiopallas paradoxa*

A-DP-10: Spurs at proximal edge of DAP (macrated): present  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: with striation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: only at distal segments  
 A-S-11: Hook-shaped spines shape : true, hyaline hook  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: between half a segment and one segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging

A-V-6: Zygosphenes fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.

A-V-7: Needle-like thorns in dorsal groove : absent

A-VP-10: Proximal VAPs ornamentation: with tubercles or striation

A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent

A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact

A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight

A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight

A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion

A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisures/notches for tentacle

A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent

AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent

AB-GP-11: Longitudinal groove in abradial surface: absent

AB-GP-12: distalmost genital papillae (on dorsal disc), shape: spine-like

AB-GP-13: Abradial GP crosses adradial GP : no

AB-GP-1: Abradial genital plate relative length : as long as adradial plate

AB-GP-2: Abradial genital plate shape : strong, curved scale

AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave

AB-GP-6: Abradial genital plate covering : fully covered

AB-GP-7: AbGP plate papillae/granules, nature: disc granules

AB-GP-8: AbGP papillae, extension: extending to latero-dorsal disc edge

AB-GP-9: Ventral genital papillae, shape : spine-like

AD-GP-1: Adradial GP shape : blade-like, straight (excluding distal tip curving dorsal)

AD-GP-2: AdGP to RS articular structures, shape : single condyle

AD-GP-3: Bar-like adGP subtypes, shape : not possible

AD-GP-4: Additional structures on adGP, shape : process

D-GS-1: Dorsal disc covering, nature: with granules only

D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)

D-GS-5: Radial shield granule/spine covering : at least partly covered

D-GS-6: Dorsal disc granules/spines differentiation : uniform

D-P-1: Dorsal disc scalation : many thin scales

D-P-3: Dorsal disc scale size : variable

D-P-4: Dorsal disc scale stereom structure : no tubercles

D-P-5: Central primary plate relative size : same size/indistinguishable/absent

D-P-6: Primary radial plates relative size : same size/indistinguishable/absent

D-P-7: Primary radial plates position : not possible

D-RS-10: RS articulation shape : one condyle

D-RS-11: RS distal edge shape : groove and lip-shaped edge

D-RS-12: Conspicuous pore in inner side of RS : absent

D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius

D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated

D-RS-5: Radial shield shape : isosceles triangular to pear-shaped

D-RS-6: Radial shield abradial edge shape : entire

D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed

D-RS-9: Muscle attachment area on RS, shape: round, flat

LAP-G-1: LAPs, position: arched

LAP-G-3: LAPs with constriction: absent

LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present

LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present

LAP-G-6: Dorsal edge distalwards ascending : absent

LAP-G-7: First LAPs, shape: like following LAPs

LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible

LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous

LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge

LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge

LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom

LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion

LAP-I-7: Large dorsal contact surface with opposite LAP: absent

LAP-I-8: Large ventral contact surface with opposite LAP : absent

LAP-I-9: Two central knobs on inner side of LAP, shape: not possible

LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: present

LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP

LAP-O-8: Outer surface, structure: vertical striation formed by merged knobs

LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : more than two small (shorter than 1/4 of LAP width)

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : along most of the edge

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection

LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)

LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent

LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive

LAP-SA-17: Lobes, orientation on plate: nearly vertical

LAP-SA-19: Sigmoidal fold, expression: ?

LAP-SA-1: Spine articulations, position: on same level as remaining outer surface

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by a thin projection of the distal LAP portion (e.g. Ophiomyces)

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge

LAP-SA-6: Spine art. size : middle spine art. larger

LAP-SA-7: Spine articulations, distance: dorsalwards increasing

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: smaller than muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes

M-DP-1: Dental plate : entire

M-DP-2: Dental plate geometry : dorsal half widest

M-DP-3: Tooth sockets, pattern: single column throughout

M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring

M-DP-7: Tooth sockets, depth: depression or perforating DP without septum

M-OAS-1: Oral shield length : longer than one third of length of interradius

M-OAS-2: Oral shield shape : longer than wide

M-OAS-3: Madreporite size : similar to other oral shields

M-OAS-4: Madreporite inner side, structure: 1–2 openings

M-OAS-5: Madreporite inner opening, position: central

M-OAS-6: Adoral shields proximity: separated

M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides

M-OAS-9: Oral shield distal portion shape : evenly convex

M-OP-1: Oral plate shape : longer than high

M-OP-2: Abradial muscle fossa shape: central depression

M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area

M-Pa-T-12: Tooth papillae, number: >2

M-PaT-10: Second degree adoral shield spine, number: ?

M-PaT-11: Lyman's ossicle, position: ?

M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: spine-like, thin and sharply pointed  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : pyramid-like raised  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiopholis aculeata*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: oval semi-circular  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: only at distal segments  
 A-S-11: Hook-shaped spines shape : true, hyaline hook  
 A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: beyond zygocondyles (e.g. Ophiothrix)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: concave or incised  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent

AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : strong, curved scale  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : blade-like, straight (excluding distal tip curving dorsal)  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: with both granules and spines  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : modified (e.g. enlarged) at disc edge  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : with smooth tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : half-circle  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : yes  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
 LAP-I-3: Ridge on inner side of LAP, shape: not possible  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
 LAP-I-6: Ridge on inner side of LAP, shape: not possible  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: with a ridge  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
 LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiuira)  
 LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
 LAP-SA-17: Lobes, orientation on plate: tilted  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: on elevation not bordered by ridge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : middle spine art. larger  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : ventral half widest  
 M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
 M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madrepore size : larger than remaining oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: central  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: rib-like branching structures  
 M-OP-4: Adradial muscle attachment area position: with large, dorsal, spoon-shaped depression  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : flat  
 VI-2: Ventral interradii, covering : with spines  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====  
*Ophioplax lamellosa*

- A-DP-10: Spurs at proximal edge of DAP (macerated): absent
- A-DP-11: Accessory dorsal arm plates: absent
- A-DP-2: DAPs per segment, number: single
- A-DP-3: Proximal DAP series, position: in contact
- A-DP-4: Proximal DAPs, shape: oval semi-circular
- A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation
- A-G-2: Integument of arms structure: naked
- A-G-3: Arms shape: simple
- A-S-10: Hook-shaped arm spines, position: at no segments
- A-S-11: Hook-shaped spines shape : not possible
- A-S-13: Arm spines, size pattern: median spine(s) longest
- A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards
- A-S-1: Arm spine position : lateral
- A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm
- A-S-3: Longest spine, length: 1-2 segments
- A-S-4: Arm spine interior structure : massive
- A-S-5: Arm spine surface ornamentation: smooth
- A-S-7: Arm spine, cross section shape: round
- A-S-8: Tip of arm spines shape: blunt
- A-TS-3: Tentacle scales, shape: operculiform/round to oval
- A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger
- A-TS-5: Tentacle scales ornamentation : without longitudinal striation
- A-TS-6: Tentacle scale placement : at both LAP and VAP
- A-V-1: Dorso-distal muscular fossae, distalwards projecion: almost beyond zygocondyles (e.g.. Ophiodoris)
- A-V-2: Lateral saddle between muscular fossae structure: with single ridge
- A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging
- A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part longer than zygoc.
- A-V-7: Needle-like thorns in dorsal groove : absent
- A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation
- A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent
- A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact
- A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight
- A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight
- A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion
- A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle
- A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent
- AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent
- AB-GP-11: Longitudinal groove in abradial surface: absent
- AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?
- AB-GP-13: Abradial GP crosses adradial GP : no
- AB-GP-1: Abradial genital plate relative length : as long as adradial plate
- AB-GP-2: Abradial genital plate shape : blade-like straight
- AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave
- AB-GP-6: Abradial genital plate covering : fully covered
- AB-GP-7: AbGP plate papillae/granules, nature: disc granules
- AB-GP-8: AbGP papillae, extension: restricted to ventral disc
- AB-GP-9: Ventral genital papillae, shape : granule-like
- AD-GP-1: Adradial GP shape : cleaver-shaped
- AD-GP-2: AdGP to RS articular structures, shape : single condyle
- AD-GP-3: Bar-like adGP subtypes, shape : not possible
- AD-GP-4: Additional structures on adGP, shape : patch of different stereom
- D-GS-1: Dorsal disc covering, nature: without granules/spines
- D-GS-2: Dorsal disc granules/spines extension : not possible
- D-GS-5: Radial shield granule/spine covering : naked
- D-GS-6: Dorsal disc granules/spines differentiation : not possible



D-P-1: Dorsal disc scalation : many thin scales  
D-P-3: Dorsal disc scale size : variable  
D-P-4: Dorsal disc scale stereom structure : no tubercles  
D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
D-P-7: Primary radial plates position : not possible  
D-RS-10: RS articulation shape : one condyle  
D-RS-11: RS distal edge shape : groove and lip-shaped edge  
D-RS-12: Conspicuous pore in inner side of RS : absent  
D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
D-RS-5: Radial shield shape : half-circle  
D-RS-6: Radial shield abradial edge shape : entire  
D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
D-RS-9: Muscle attachment area on RS, shape: round, flat  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)  
LAP-SA-15: Dorsal and ventral lobes, shape: straight  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : middle spine art. larger

LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : longer than one third of length of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: 1–2 openings  
 M-OAS-5: Madreporite inner opening, position: distal  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (*Ophiura*)  
 M-PaT-4: infradental papillae, position: below teeth  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiopleura borealis*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible

A-S-13: Arm spines, size pattern: median spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part longer than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : scoop-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: papillae  
 AB-GP-8: AbGP papillae, extension: restricted to ventral disc  
 AB-GP-9: Ventral genital papillae, shape : granule-like  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : condylar process, single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : bar-like  
 D-RS-6: Radial shield abradial edge shape : entire

D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: ridge separated into two halves  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: denticulate  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
 LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
 LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: in notches of distal LAP edge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : vertical mouth-shaped, sharply defined elevation  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: vertical  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: thick, lip-shaped and strongly protruding  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
 LAP-SA-6: Spine art. size : ventralwards increasing  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: distalwards, close to horizontal midline of LAP  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : longer than wide

M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: 1–2 openings  
 M-OAS-5: Madreporite inner opening, position: central  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute to right angle with convex to straight sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-Pa-T-10: Second degree adoral shield spine, number: multiple  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: present  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: exposed  
 M-Pa-T-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-Pa-T-4: Infradental papillae, position: lateral, at distance from dental plate  
 M-Pa-T-5: Adoral shield spine shape : scale-like or like other papillae  
 M-Pa-T-6: Second degree ASS, position: at 2nd tenacle pore  
 M-Pa-T-7: Additional lateral papillae, shape: ?  
 M-Pa-T-8: Teeth, shape: spine-like, thin and sharply pointed  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : shorter than half interradius

---

*Ophiopsila guineensis*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: oval semi-circular  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: ventralmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: flat, elongated  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: almost beyond zygocondyles (e.g.. Ophiodoris)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge

A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygocondyles with projecting part as long as zygocondyles.  
A-V-7: Needle-like thorns in dorsal groove : absent  
A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisures/notches for tentacle  
A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
AB-GP-11: Longitudinal groove in abradial surface: absent  
AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
AB-GP-13: Abradial GP crosses adradial GP : no  
AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
AB-GP-2: Abradial genital plate shape : sabre- or sickle-shaped  
AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
AB-GP-6: Abradial genital plate covering : fully covered  
AB-GP-7: AbGP plate papillae/granules, nature: ?  
AB-GP-8: AbGP papillae, extension: ?  
AB-GP-9: Ventral genital papillae, shape : ?  
AD-GP-1: Adradial GP shape : bar-like  
AD-GP-2: AdGP to RS articular structures, shape : single condyle  
AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
AD-GP-4: Additional structures on adGP, shape : process  
D-GS-1: Dorsal disc covering, nature: without granules/spines  
D-GS-2: Dorsal disc granules/spines extension : not possible  
D-GS-5: Radial shield granule/spine covering : naked  
D-GS-6: Dorsal disc granules/spines differentiation : not possible  
D-P-1: Dorsal disc scalation : many thin scales  
D-P-3: Dorsal disc scale size : uniform  
D-P-4: Dorsal disc scale stereom structure : no tubercles  
D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
D-P-7: Primary radial plates position : not possible  
D-RS-10: RS articulation shape : one condyle  
D-RS-11: RS distal edge shape : groove and lip-shaped edge  
D-RS-12: Conspicuous pore in inner side of RS : absent  
D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
D-RS-5: Radial shield shape : bar-like  
D-RS-6: Radial shield abradial edge shape : entire  
D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
D-RS-9: Muscle attachment area on RS, shape: round, flat  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
LAP-I-3: Ridge on inner side of LAP, shape: not possible  
LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
LAP-I-6: Ridge on inner side of LAP, shape: not possible  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent

LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: simple  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom  
 LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. *Amphiura*)  
 LAP-SA-15: Dorsal and ventral lobes, shape: straight  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : ventralwards increasing  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : dorsal half widest  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : as long as wide  
 M-OAS-3: Madreporite size : larger than remaining oral shields  
 M-OAS-4: Madreporite inner side, structure: 1–2 openings  
 M-OAS-5: Madreporite inner opening, position: distal  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : evenly convex  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: with large, dorsal, spoon-shaped depression  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: smaller papilla (*Ophiura*)  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae

M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : bar-like  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : not possible  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

*Ophiopus arcticus*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: leaf-like blunt  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorsal-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : ?  
 AB-GP-1: Abradial genital plate relative length : ?  
 AB-GP-2: Abradial genital plate shape : ?



AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?  
 AB-GP-6: Abradial genital plate covering : ?  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : wrench-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
 LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
 LAP-I-3: Ridge on inner side of LAP, shape: not possible  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
 LAP-I-6: Ridge on inner side of LAP, shape: not possible  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: simple  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : simply separated  
 LAP-SA-13: Dorsal and ventral lobe size : equal-sized  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)

LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : all similar  
 LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madrepore size : similar to other oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: centro-distal  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining more than two thirds of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: ?  
 M-Pa-T-10: Second degree adoral shield spine, number: single  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: absent  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: exposed  
 M-Pa-T-3: Buccal scale, shape: smaller papilla (*Ophiura*)  
 M-Pa-T-4: infradental papillae, position: lateral, close to dental plate  
 M-Pa-T-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-Pa-T-6: Second degree ASS, position: at oral plate  
 M-Pa-T-7: Additional lateral papillae, shape: ?  
 M-Pa-T-8: Teeth, shape: with square tip  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradial, covering : naked  
 VI-3: Genital slit length : lost

=====  
*Ophiopyrgus saccharatus*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (addressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: almost beyond zygocondyles (e.g.. Ophiodoris)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: spine-like  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : triangular to pear-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: papillae  
 AB-GP-8: AbGP papillae, extension: extending to latero-dorsal disc edge  
 AB-GP-9: Ventral genital papillae, shape : spine-like  
 AD-GP-1: Adradial GP shape : stout, half as wide as long  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : thick scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : with smooth tubercles

D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
D-P-6: Primary radial plates relative size : larger than scales  
D-P-7: Primary radial plates position : in contact with CPP  
D-RS-10: RS articulation shape : smooth patch  
D-RS-11: RS distal edge shape : other shape  
D-RS-12: Conspicuous pore in inner side of RS : present  
D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: separated proximally  
D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
D-RS-6: Radial shield abradial edge shape : entire  
D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
D-RS-9: Muscle attachment area on RS, shape: round, flat  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: entire  
LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
LAP-O-8: Outer surface, structure: vertical striation formed by merged knobs  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : along most of the edge  
LAP-SA-10: Articular structures, shape: like surrounding stereom  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: denticulate  
LAP-SA-12: Dorsal and ventral lobes connection : not possible  
LAP-SA-13: Dorsal and ventral lobe size : not possible  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
LAP-SA-17: Lobes, orientation on plate: not possible  
LAP-SA-19: Sigmoidal fold, expression: not possible  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: oblique  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: slender  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: only 2  
LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : longer than one third of length of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madrepore size : similar to other oral shields  
 M-OAS-4: Madrepore inner side, structure: ?  
 M-OAS-5: Madrepore inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-PaT-10: Second degree adoral shield spine, number: multiple  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: lateral, at distance from dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at 2nd tentacle pore  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Ophiopyrgus wyvillethomsoni*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm

A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : ?  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part as long as zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : triangular to pear-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: papillae  
 AB-GP-8: AbGP papillae, extension: restricted to ventral disc  
 AB-GP-9: Ventral genital papillae, shape : block-like  
 AD-GP-1: Adradial GP shape : stout, half as wide as long  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : thick scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : in contact with CPP  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: less than one third of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: separated distally  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : incised/irregular  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Vento-proximalwards projection of ventral portion of LAP: absent

LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: entire  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: like surrounding stereom  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
LAP-SA-12: Dorsal and ventral lobes connection : not possible  
LAP-SA-13: Dorsal and ventral lobe size : not possible  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
LAP-SA-17: Lobes, orientation on plate: not possible  
LAP-SA-19: Sigmoidal fold, expression: not possible  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: ?  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: ?  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: only 2  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: within-plate perforation  
LAP-TP-2: Tentacle notch, direction: ?  
LAP-TP-3: Tentacle notch externally lined by narrow groove : ?  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : ?  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : ventral half widest  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : longer than one third of length of interradius  
M-OAS-2: Oral shield shape : longer than wide  
M-OAS-3: Madrepore size : similar to other oral shields  
M-OAS-4: Madrepore inner side, structure: ?  
M-OAS-5: Madrepore inner opening, position: ?  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides

M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: lateral, at distance from dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at 2nd tenacle pore  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

#### *Ophioscolex glacialis*

A-DP-10: Spurs at proximal edge of DAP (macerated): not possible  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: none  
 A-DP-3: Proximal DAP series, position: ?  
 A-DP-4: Proximal DAPs, shape: not possible  
 A-DP-8: Proximal DAPs, ornamentation: not possible  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: ?  
 A-TS-4: Tentacle scales, size: ?  
 A-TS-5: Tentacle scales ornamentation : ?  
 A-TS-6: Tentacle scale placement : ?  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent



A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : blade-like straight  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : ?  
 AD-GP-3: Bar-like adGP subtypes, shape : distally not inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : ?  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : very few thin small scales or none  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: ?  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: ?  
 D-RS-5: Radial shield shape : ?  
 D-RS-6: Radial shield abradial edge shape : ?  
 D-RS-7: Radial shield, exposure: ?  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: present  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible

LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: not protruding  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : along most of the edge  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiuira)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : dorsalwards increasing  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : yes  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : ventral half widest  
M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
M-DP-5: Tooth sockets, predominant shape: simple opening  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : wider than long  
M-OAS-3: Madreporite size : larger than remaining oral shields  
M-OAS-4: Madreporite inner side, structure: 1–2 openings  
M-OAS-5: Madreporite inner opening, position: distal  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : evenly convex  
M-OAS-9: Oral shield distal portion shape : evenly convex  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
M-Pa-T-12: Tooth papillae, number: >2  
M-PaT-10: Second degree adoral shield spine, number: ?  
M-PaT-11: Lyman's ossicle, position: ?  
M-PaT-13: Accessory oral papillae: ?  
M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
M-PaT-3: Buccal scale, shape: ?  
M-PaT-4: infradental papillae, position: ?  
M-PaT-5: Adoral shield spine shape : spiniform  
M-PaT-6: Second degree ASS, position: ?  
M-PaT-7: Additional lateral papillae, shape: ?

M-PaT-8: Teeth, shape: spine-like, thin and sharply pointed  
M-PaT-9: Infradental papillae, relative size: ?  
M-SP-1: Second tentacle pore position : shallow and oblique  
OR-GP-1: Oral GP : present  
OR-GP-2: Oral GP, shape : oval  
OR-GP-3: Rectangular oral GP, details : not possible  
OR-GP-4: Oval oral GP, details : with distal notch  
VI-2: Ventral interradii, covering : naked  
VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Ophiotholia spathifer*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
A-DP-11: Accessory dorsal arm plates: absent  
A-DP-2: DAPs per segment, number: single  
A-DP-3: Proximal DAP series, position: separated  
A-DP-4: Proximal DAPs, shape: fan-shaped  
A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
A-G-2: Integument of arms structure: naked  
A-G-3: Arms shape: simple  
A-S-10: Hook-shaped arm spines, position: at no segments  
A-S-11: Hook-shaped spines shape : not possible  
A-S-13: Arm spines, size pattern: median spine(s) longest  
A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
A-S-1: Arm spine position : lateral  
A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
A-S-3: Longest spine, length: 1-2 segments  
A-S-4: Arm spine interior structure : massive  
A-S-5: Arm spine surface ornamentation: with lateral thorns  
A-S-7: Arm spine, cross section shape: round  
A-S-8: Tip of arm spines shape: pointed  
A-TS-3: Tentacle scales, shape: operculiform/round to oval  
A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
A-TS-6: Tentacle scale placement : at both LAP and VAP  
A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
A-V-6: Zygosphenes fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
A-V-7: Needle-like thorns in dorsal groove : absent  
A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): present  
AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
AB-GP-11: Longitudinal groove in abradial surface: absent  
AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
AB-GP-13: Abradial GP crosses adradial GP : no  
AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
AB-GP-2: Abradial genital plate shape : blade-like straight  
AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : straight or convex  
AB-GP-6: Abradial genital plate covering : fully covered

AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : blade-like, straight (excluding distal tip curving dorsal)  
 AD-GP-2: AdGP to RS articular structures, shape : ?  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : ?  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : ?  
 D-P-7: Primary radial plates position : ?  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: ?  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: ?  
 D-RS-5: Radial shield shape : ?  
 D-RS-6: Radial shield abradial edge shape : ?  
 D-RS-7: Radial shield, exposure: ?  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: present  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
 LAP-I-6: Ridge on inner side of LAP, shape: with kink between dorso-proximalwards pointing dorsal portion and ventro-proximalwards pointing ventral portion  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: vertical striation formed by regular ridges  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
 LAP-SA-10: Articular structures, shape: elevated lobes  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
 LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
 LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiuira)

LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: massive  
 LAP-SA-17: Lobes, orientation on plate: nearly horizontal  
 LAP-SA-19: Sigmoidal fold, expression: ?  
 LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
 LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by a thin projection of the distal LAP portion (e.g. Ophiomyces)  
 LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
 LAP-SA-6: Spine art. size : ventralwards increasing  
 LAP-SA-7: Spine articulations, distance: equidistant  
 LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
 LAP-SA-9: Nerve opening, size: smaller than muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: ventralwards  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : ventral half widest  
 M-DP-3: Tooth sockets, pattern: single column throughout  
 M-DP-5: Tooth sockets, predominant shape: simple opening  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madreporite size : similar to other oral shields  
 M-OAS-4: Madreporite inner side, structure: ?  
 M-OAS-5: Madreporite inner opening, position: ?  
 M-OAS-6: Adoral shields proximity: separated  
 M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining less than two thirds of distal edge of adradial articulation area  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-Pa-T-10: Second degree adoral shield spine, number: single  
 M-Pa-T-11: Lyman's ossicle, position: oblique in mouth slit  
 M-Pa-T-13: Accessory oral papillae: absent  
 M-Pa-T-1: Lateral papillae, arrangement: multiple rows covering jaws  
 M-Pa-T-2: Ventralmost tooth, position: exposed  
 M-Pa-T-3: Buccal scale, shape: ?  
 M-Pa-T-4: infradental papillae, position: lateral, close to dental plate  
 M-Pa-T-5: Adoral shield spine shape : spiniform  
 M-Pa-T-6: Second degree ASS, position: at oral plate  
 M-Pa-T-7: Additional lateral papillae, shape: spiniform  
 M-Pa-T-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-Pa-T-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

*Ophiothrix fragilis*

- A-DP-10: Spurs at proximal edge of DAP (macerated): absent
- A-DP-11: Accessory dorsal arm plates: absent
- A-DP-2: DAPs per segment, number: single
- A-DP-3: Proximal DAP series, position: in contact
- A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge
- A-DP-8: Proximal DAPs, ornamentation: tuberculous
- A-G-2: Integument of arms structure: naked
- A-G-3: Arms shape: simple
- A-S-10: Hook-shaped arm spines, position: at proximal and distal segments
- A-S-11: Hook-shaped spines shape : true, hyaline hook
- A-S-13: Arm spines, size pattern: median spine(s) longest
- A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards
- A-S-1: Arm spine position : lateral
- A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm
- A-S-3: Longest spine, length: longer than 2 segments
- A-S-4: Arm spine interior structure : massive
- A-S-5: Arm spine surface ornamentation: with lateral thorns
- A-S-7: Arm spine, cross section shape: round
- A-S-8: Tip of arm spines shape: pointed
- A-TS-3: Tentacle scales, shape: spine-like
- A-TS-4: Tentacle scales, size: not accurately closing tentacle pore
- A-TS-5: Tentacle scales ornamentation : without longitudinal striation
- A-TS-6: Tentacle scale placement : only at LAP
- A-V-1: Dorso-distal muscular fossae, distalwards projecion: beyond zygocondyles (e.g. *Ophiothrix*)
- A-V-2: Lateral saddle between muscular fossae structure: with single ridge
- A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging
- A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.
- A-V-7: Needle-like thorns in dorsal groove : absent
- A-VP-10: Proximal VAPs ornamentation: with tubercles or striation
- A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent
- A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact
- A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised
- A-VP-5: Proximal edge of proximal VAPs (macerated) shape: concave or incised
- A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion
- A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle
- A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. *Ophiomyces*): absent
- AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent
- AB-GP-11: Longitudinal groove in abradial surface: absent
- AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?
- AB-GP-13: Abradial GP crosses adradial GP : no
- AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length
- AB-GP-2: Abradial genital plate shape : strong, curved scale
- AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave
- AB-GP-6: Abradial genital plate covering : fully covered
- AB-GP-7: AbGP plate papillae/granules, nature: ?
- AB-GP-8: AbGP papillae, extension: ?
- AB-GP-9: Ventral genital papillae, shape : ?
- AD-GP-1: Adradial GP shape : bar-like
- AD-GP-2: AdGP to RS articular structures, shape : single condyle
- AD-GP-3: Bar-like adGP subtypes, shape : distally inflated
- AD-GP-4: Additional structures on adGP, shape : process
- D-GS-1: Dorsal disc covering, nature: with spines only
- D-GS-2: Dorsal disc granules/spines extension : sparse all over with underlying plates/scales visible or restricted to margin
- D-GS-5: Radial shield granule/spine covering : naked
- D-GS-6: Dorsal disc granules/spines differentiation : modified (e.g. enlarged) at disc edge
- D-P-1: Dorsal disc scalation : many thin scales

D-P-3: Dorsal disc scale size : uniform  
D-P-4: Dorsal disc scale stereom structure : with smooth tubercles  
D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
D-P-6: Primary radial plates relative size : larger than scales  
D-P-7: Primary radial plates position : in contact with CPP  
D-RS-10: RS articulation shape : one condyle  
D-RS-11: RS distal edge shape : groove and lip-shaped edge  
D-RS-12: Conspicuous pore in inner side of RS : absent  
D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
D-RS-5: Radial shield shape : scalene triangular  
D-RS-6: Radial shield abradial edge shape : entire  
D-RS-7: Radial shield, exposure: distal-adradial portion of RS exposed  
D-RS-9: Muscle attachment area on RS, shape: round, flat  
LAP-G-1: LAPs, position: arched  
LAP-G-3: LAPs with constriction: absent  
LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : no  
LAP-I-15: Perforations on inner side of LAP, shape: single large and conspicuous  
LAP-I-1: Inner side of LAP, main structure: two separate (rarely merged) central knobs  
LAP-I-3: Ridge on inner side of LAP, shape: not possible  
LAP-I-5: Ridge on inner side of LAP, stereom structure: not possible  
LAP-I-6: Ridge on inner side of LAP, shape: not possible  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: with a ridge  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiura)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: ?  
LAP-SA-1: Spine articulations, position: on elevation not bordered by ridge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : middle spine art. larger  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : ventral half widest  
 M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
 M-DP-5: Tooth sockets, predominant shape: surrounded by strongly protruding knobs and/or ridges  
 M-DP-7: Tooth sockets, depth: at least some perforating DP with septum  
 M-OAS-1: Oral shield length : covering less than one third of interradius  
 M-OAS-2: Oral shield shape : wider than long  
 M-OAS-3: Madrepore size : similar to other oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: central  
 M-OAS-6: Adoral shields proximity: separated  
 M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : as high as long or higher  
 M-OP-2: Abradial muscle fossa shape: large, well defined flange  
 M-OP-3: Abradial muscle attachment area stereom structure: rib-like branching structures  
 M-OP-4: Adradial muscle attachment area position: with large, dorsal, spoon-shaped depression  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: ?  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: ?  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: lost  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : ?  
 M-PaT-6: Second degree ASS, position: ?  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: ?  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : oval  
 OR-GP-3: Rectangular oral GP, details : not possible  
 OR-GP-4: Oval oral GP, details : with distal notch  
 VI-2: Ventral interradii, covering : with spines  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

---

*Ophiotreta valenciennesi*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: longer than 2 segments  
 A-S-4: Arm spine interior structure : ?



A-S-5: Arm spine surface ornamentation: with lateral thorns  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : with longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: present  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : thin curved scale  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : fully covered  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : process  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : at least partly covered  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : uniform  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : same size/indistinguishable/absent  
 D-P-6: Primary radial plates relative size : same size/indistinguishable/absent  
 D-P-7: Primary radial plates position : not possible  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : present  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: distal portion of RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: crater-like depression with proximal protruding edge/rim  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: present  
 LAP-G-4: Vento-proximalwards projection of ventral portion of LAP: present

LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: vertical row with furrow  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: with two kinks and dorsal kink with ventro-proximalwards pointing projection  
LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
LAP-I-8: Large ventral contact surface with opposite LAP : absent  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
LAP-O-8: Outer surface, structure: vertical striation formed by regular ridges  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
LAP-SA-10: Articular structures, shape: elevated lobes  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible  
LAP-SA-12: Dorsal and ventral lobes connection : merged at their proximal tips by smooth connection  
LAP-SA-13: Dorsal and ventral lobe size : one lobe clearly larger than the other  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: shifted (e.g. Ophiacantha)  
LAP-SA-15: Dorsal and ventral lobes, shape: at least one lobe bent  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations  
LAP-SA-17: Lobes, orientation on plate: tilted  
LAP-SA-19: Sigmoidal fold, expression: fully developed  
LAP-SA-1: Spine articulations, position: on elevated portion bordered prox. by ridge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible  
LAP-SA-4: Spine articulation, separation from distal edge: separated from distal edge by the usual outer surface stereom  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : dorsalwards increasing  
LAP-SA-7: Spine articulations, distance: dorsalwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: smaller than muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : several pieces  
M-DP-2: Dental plate geometry : ventral half widest  
M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : as long as wide  
M-OAS-3: Madreporite size : similar to other oral shields  
M-OAS-4: Madreporite inner side, structure: ?  
M-OAS-5: Madreporite inner opening, position: ?  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield

M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : with narrower distalward projection  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: oblique in mouth slit  
 M-PaT-13: Accessory oral papillae: absent  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: ?  
 M-PaT-4: infradental papillae, position: lateral, close to dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: rounded  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

#### *Ophiozonella longispina*

A-DP-10: Spurs at proximal edge of DAP (macrated): present  
 A-DP-11: Accessory dorsal arm plates: present  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly erect, standing perpendicular to arm  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: pointed  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent

A-VP-10: Proximal VAPs ornamentation: with tubercles or striation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : as long as adradial plate  
 AB-GP-2: Abradial genital plate shape : scoop-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : comma-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : condylar process  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : with smooth tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : one condyle  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with separate knob on ventral tip of LAP  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent

LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP

LAP-O-8: Outer surface, structure: normal stereom

LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 small (shorter than 1/4 of LAP width)

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom

LAP-SA-13: Dorsal and ventral lobe size : equal-sized

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. *Amphiura*)

LAP-SA-15: Dorsal and ventral lobes, shape: straight

LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations

LAP-SA-17: Lobes, orientation on plate: nearly horizontal

LAP-SA-19: Sigmoidal fold, expression: ?

LAP-SA-1: Spine articulations, position: in notches of distal LAP edge

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP

LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge

LAP-SA-6: Spine art. size : all similar

LAP-SA-7: Spine articulations, distance: only 2

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: approx. as large as muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : no

M-DP-1: Dental plate : entire

M-DP-2: Dental plate geometry : dorsal half widest

M-DP-3: Tooth sockets, pattern: single column throughout

M-DP-5: Tooth sockets, predominant shape: surrounded by separate, weakly protruding knobs and/or ridges

M-DP-7: Tooth sockets, depth: at least some perforating DP with septum

M-OAS-1: Oral shield length : covering less than one third of interradius

M-OAS-2: Oral shield shape : as long as wide

M-OAS-3: Madreporite size : similar to other oral shields

M-OAS-4: Madreporite inner side, structure: 1–2 openings

M-OAS-5: Madreporite inner opening, position: central

M-OAS-6: Adoral shields proximity: meeting proximal to oral shield

M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides

M-OAS-9: Oral shield distal portion shape : evenly convex

M-OP-1: Oral plate shape : longer than high

M-OP-2: Abradial muscle fossa shape: central depression

M-OP-3: Abradial muscle attachment area stereom structure: normal stereom

M-OP-4: Adradial muscle attachment area position: in middle position, vertical and lining more than two thirds of adradial articulation area

M-Pa-T-12: Tooth papillae, number: ?

M-PaT-10: Second degree adoral shield spine, number: single

M-PaT-11: Lyman's ossicle, position: oblique in mouth slit

M-PaT-13: Accessory oral papillae: absent

M-PaT-1: Lateral papillae, arrangement: single row along jaw edge

M-PaT-2: Ventralmost tooth, position: exposed

M-PaT-3: Buccal scale, shape: smaller papilla (*Ophiura*)

M-PaT-4: infradental papillae, position: lateral, close to dental plate

M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with square tip  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

### *Ophiura ophiura*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: between half a segment and one segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part longer than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: spine-like  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length

AB-GP-2: Abradial genital plate shape : cup-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: papillae  
 AB-GP-8: AbGP papillae, extension: extending to latero-dorsal disc edge  
 AB-GP-9: Ventral genital papillae, shape : block-like  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : 2 condyles  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isosceles triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: elongated, blade-like  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: ridge separated into two halves  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: vertical striation formed by merged knobs  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: denticulate  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible

LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
 LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: in notches of distal LAP edge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : vertical mouth-shaped, sharply defined elevation  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: vertical  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: slender  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
 LAP-SA-6: Spine art. size : dorsalwards increasing  
 LAP-SA-7: Spine articulations, distance: ventralwards increasing  
 LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
 LAP-TP-2: Tentacle notch, direction: distalwards, close to horizontal midline of LAP  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : equal width all over  
 M-DP-3: Tooth sockets, pattern: multiple columns throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : longer than one third of length of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madrepore size : similar to other oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: central  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute to right angle with convex to straight sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-Pa-T-10: Second degree adoral shield spine, number: multiple  
 M-Pa-T-11: Lyman's ossicle, position: ?  
 M-Pa-T-13: Accessory oral papillae: present  
 M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
 M-Pa-T-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-Pa-T-3: Buccal scale, shape: smaller papilla (*Ophiura*)  
 M-Pa-T-4: infradental papillae, position: lateral, at distance from dental plate  
 M-Pa-T-5: Adoral shield spine shape : scale-like or like other papillae  
 M-Pa-T-6: Second degree ASS, position: at 2nd tenacle pore  
 M-Pa-T-7: Additional lateral papillae, shape: ?  
 M-Pa-T-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-Pa-T-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

*Ophiura sarsii*



A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (addressed)  
 A-S-3: Longest spine, length: 1-2 segments  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: far from distal edge of zygocondyles (e.g. Ophiacantha)  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: projecting beyond ventral edge of zygoc. with projecting part longer than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: not incised  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): not possible  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: spine-like  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : longer than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : cup-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: papillae  
 AB-GP-8: AbGP papillae, extension: extending to latero-dorsal disc edge  
 AB-GP-9: Ventral genital papillae, shape : block-like  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : 2 condyles  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable

D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : two condyles/spurs with depression between them  
 D-RS-11: RS distal edge shape : groove and lip-shaped edge  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isosceles triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : with extension(s) (regular outline enlarged)  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: absent  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: elongated, blade-like  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: ridge separated into two halves  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP  
 LAP-O-8: Outer surface, structure: vertical striation formed by merged knobs  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: denticulate  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
 LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
 LAP-SA-17: Lobes, orientation on plate: not possible  
 LAP-SA-19: Sigmoidal fold, expression: not possible  
 LAP-SA-1: Spine articulations, position: in notches of distal LAP edge  
 LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : vertical mouth-shaped, sharply defined elevation  
 LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: vertical  
 LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: slender  
 LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
 LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
 LAP-SA-6: Spine art. size : dorsalwards increasing  
 LAP-SA-7: Spine articulations, distance: equidistant  
 LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
 LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
 LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: distalwards, close to horizontal midline of LAP  
 LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
 LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
 M-DP-1: Dental plate : entire  
 M-DP-2: Dental plate geometry : ventral half widest  
 M-DP-3: Tooth sockets, pattern: multiple columns throughout  
 M-DP-5: Tooth sockets, predominant shape: surrounded by a more or less continuous protruding ring  
 M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
 M-OAS-1: Oral shield length : longer than one third of length of interradius  
 M-OAS-2: Oral shield shape : longer than wide  
 M-OAS-3: Madrepore size : similar to other oral shields  
 M-OAS-4: Madrepore inner side, structure: 1–2 openings  
 M-OAS-5: Madrepore inner opening, position: central  
 M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
 M-OAS-8: Oral shield proximal portion shape : acute to right angle with convex to straight sides  
 M-OAS-9: Oral shield distal portion shape : evenly convex  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: >2  
 M-PaT-10: Second degree adoral shield spine, number: multiple  
 M-PaT-11: Lyman's ossicle, position: ?  
 M-PaT-13: Accessory oral papillae: present  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: exposed  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: lateral, at distance from dental plate  
 M-PaT-5: Adoral shield spine shape : scale-like or like other papillae  
 M-PaT-6: Second degree ASS, position: at 2nd tentacle pore  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : shallow and oblique  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

#### *Palaeocoma milleri*

A-DP-10: Spurs at proximal edge of DAP (macrated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: trapezoid with smooth proximal edge  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: dorsalmost spine(s) longest  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment

A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: not accurately closing tentacle pore  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : at both LAP and VAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: concave or incised  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: ?  
 AB-GP-11: Longitudinal groove in abradial surface: ?  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: block-like  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : shorter than half the adradial plate length  
 AB-GP-2: Abradial genital plate shape : cup-shaped  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : concave  
 AB-GP-6: Abradial genital plate covering : exposed  
 AB-GP-7: AbGP plate papillae/granules, nature: papillae  
 AB-GP-8: AbGP papillae, extension: extending to latero-dorsal disc edge  
 AB-GP-9: Ventral genital papillae, shape : block-like  
 AD-GP-1: Adradial GP shape : bar-like  
 AD-GP-2: AdGP to RS articular structures, shape : single condyle  
 AD-GP-3: Bar-like adGP subtypes, shape : distally inflated  
 AD-GP-4: Additional structures on adGP, shape : patch of different stereom  
 D-GS-1: Dorsal disc covering, nature: with granules only  
 D-GS-2: Dorsal disc granules/spines extension : forming dense cover completely hiding underlying plates/scales (possible exception radial shields)  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : uniform  
 D-P-1: Dorsal disc scalation : many thin scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : no tubercles  
 D-P-5: Central primary plate relative size : ?  
 D-P-6: Primary radial plates relative size : ?  
 D-P-7: Primary radial plates position : ?  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Vento-proximalwards projection of ventral portion of LAP: present

LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
LAP-G-6: Dorsal edge distalwards ascending : absent  
LAP-G-7: First LAPs, shape: like following LAPs  
LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
LAP-I-15: Perforations on inner side of LAP, shape: vertical row without furrow  
LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
LAP-I-3: Ridge on inner side of LAP, shape: entire  
LAP-I-5: Ridge on inner side of LAP, stereom structure: more compact or more densely meshed stereom  
LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
LAP-I-7: Large dorsal contact surface with opposite LAP: present  
LAP-I-8: Large ventral contact surface with opposite LAP : present  
LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
LAP-O-8: Outer surface, structure: normal stereom  
LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : more than two small (shorter than 1/4 of LAP width)  
LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present  
LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding  
LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)  
LAP-SA-10: Articular structures, shape: like surrounding stereom  
LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
LAP-SA-12: Dorsal and ventral lobes connection : not possible  
LAP-SA-13: Dorsal and ventral lobe size : not possible  
LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible  
LAP-SA-17: Lobes, orientation on plate: not possible  
LAP-SA-19: Sigmoidal fold, expression: not possible  
LAP-SA-1: Spine articulations, position: in notches of distal LAP edge  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : vertical mouth-shaped, sharply defined elevation  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: vertical  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: slender  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : arranged over entire distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: ventralwards increasing  
LAP-SA-8: Nerve and muscle openings separation: by large, prominent ridge or regular stereom  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards  
LAP-TP-3: Tentacle notch externally lined by narrow groove : yes  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: multiple columns or cluster on max half of plate  
M-DP-5: Tooth sockets, predominant shape: simple opening  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : longer than one third of length of interradius  
M-OAS-2: Oral shield shape : longer than wide  
M-OAS-3: Madrepore size : similar to other oral shields  
M-OAS-4: Madrepore inner side, structure: ?  
M-OAS-5: Madrepore inner opening, position: ?  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield

M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
 M-OAS-9: Oral shield distal portion shape : square  
 M-OP-1: Oral plate shape : longer than high  
 M-OP-2: Abradial muscle fossa shape: central depression  
 M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
 M-OP-4: Adradial muscle attachment area position: ventral, lining ventral or ventro-distal edge of articulation area  
 M-Pa-T-12: Tooth papillae, number: 2  
 M-PaT-10: Second degree adoral shield spine, number: single  
 M-PaT-11: Lyman's ossicle, position: in line with other papillae  
 M-PaT-13: Accessory oral papillae: ?  
 M-PaT-1: Lateral papillae, arrangement: single row along jaw edge  
 M-PaT-2: Ventralmost tooth, position: obscured by tooth papillae  
 M-PaT-3: Buccal scale, shape: smaller papilla (Ophiura)  
 M-PaT-4: infradental papillae, position: ?  
 M-PaT-5: Adoral shield spine shape : scale-like, much larger/wider than other papillae  
 M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : absent  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : with granules  
 VI-3: Genital slit length : longer than half interradius or divided into two openings

=====

#### *Sigsbeia murrhina*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: present  
 A-DP-2: DAPs per segment, number: multiple  
 A-DP-3: Proximal DAP series, position: in contact  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: tuberculous  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: constant  
 A-S-1: Arm spine position : at prox. segments only on ventral side of arm  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: laterally flattened  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : ?  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projection: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: dorsalwards converging  
 A-V-6: Zygosphene fused with pair of zygocondyles size: ?  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: with tubercles or striation

A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: potentially in contact  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: concave or incised  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: wider than proximal portion  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: absent  
 AB-GP-11: Longitudinal groove in abradial surface: absent  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : ?  
 AB-GP-2: Abradial genital plate shape : ?  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?  
 AB-GP-6: Abradial genital plate covering : ?  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : stout, half as wide as long  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : not possible  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : thick scales  
 D-P-3: Dorsal disc scale size : variable  
 D-P-4: Dorsal disc scale stereom structure : with smooth tubercles  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : at a distance from CPP  
 D-RS-10: RS articulation shape : ?  
 D-RS-11: RS distal edge shape : ?  
 D-RS-12: Conspicuous pore in inner side of RS : ?  
 D-RS-3: Radial shields (in articulated disc plating), length: more than half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: completely separated  
 D-RS-5: Radial shield shape : isoscele triangular to pear-shaped  
 D-RS-6: Radial shield abradial edge shape : ?  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: ?  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): absent  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: with ventral tip of ventro-proximalwards pointing part of ridge separated from remaining ridge  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent

LAP-O-2: Outer surface trabecular intersections, shape: protruding to form knobs larger than stereom pores on most of outer surface of LAP

LAP-O-8: Outer surface, structure: normal stereom

LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : only in central part

LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : 1 or 2 large (wider than 1/4 of LAP width)

LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : present

LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: not protruding

LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : restricted to small area (e.g. between spurs)

LAP-SA-10: Articular structures, shape: elevated lobes

LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: not possible

LAP-SA-12: Dorsal and ventral lobes connection : separated by one or several knobs or by denticulate stereom

LAP-SA-13: Dorsal and ventral lobe size : equal-sized

LAP-SA-14: Dorsal and ventral lobes, orientation to each other: parallel (e.g. Amphiuira)

LAP-SA-15: Dorsal and ventral lobes, shape: straight

LAP-SA-16: Dorsal and ventral lobes, stereom structure: with perforations

LAP-SA-17: Lobes, orientation on plate: nearly horizontal

LAP-SA-19: Sigmoidal fold, expression: ?

LAP-SA-1: Spine articulations, position: on same level as remaining outer surface

LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : not possible

LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: not possible

LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: not possible

LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP

LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge

LAP-SA-6: Spine art. size : all similar

LAP-SA-7: Spine articulations, distance: only 2

LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all

LAP-SA-9: Nerve opening, size: smaller than muscle opening

LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch

LAP-TP-2: Tentacle notch, direction: ventralwards to ventro-distalwards

LAP-TP-3: Tentacle notch externally lined by narrow groove : no

LAP-TP-4: Inner side of notch with horizontally stretched stereom : no

M-DP-1: Dental plate : ?

M-DP-2: Dental plate geometry : ?

M-DP-3: Tooth sockets, pattern: ?

M-DP-5: Tooth sockets, predominant shape: ?

M-DP-7: Tooth sockets, depth: ?

M-OAS-1: Oral shield length : covering less than one third of interradius

M-OAS-2: Oral shield shape : wider than long

M-OAS-3: Madreporite size : similar to other oral shields

M-OAS-4: Madreporite inner side, structure: ?

M-OAS-5: Madreporite inner opening, position: ?

M-OAS-6: Adoral shields proximity: meeting proximal to oral shield

M-OAS-8: Oral shield proximal portion shape : obtuse angle with straight to convex sides

M-OAS-9: Oral shield distal portion shape : evenly convex

M-OP-1: Oral plate shape : ?

M-OP-2: Abradial muscle fossa shape: ?

M-OP-3: Abradial muscle attachment area stereom structure: ?

M-OP-4: Adradial muscle attachment area position: ?

M-Pa-T-12: Tooth papillae, number: ?

M-PaT-10: Second degree adoral shield spine, number: single

M-PaT-11: Lyman's ossicle, position: ?

M-PaT-13: Accessory oral papillae: absent

M-PaT-1: Lateral papillae, arrangement: single row along jaw edge

M-PaT-2: Ventralmost tooth, position: exposed

M-PaT-3: Buccal scale, shape: single, wide papilla (Amphilepis)

M-PaT-4: infradental papillae, position: lateral, close to dental plate

M-PaT-5: Adoral shield spine shape : scale-like or like other papillae



M-PaT-6: Second degree ASS, position: at oral plate  
 M-PaT-7: Additional lateral papillae, shape: ?  
 M-PaT-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
 M-PaT-9: Infradental papillae, relative size: similar to other oral papillae  
 M-SP-1: Second tentacle pore position : deep inside mouth slit  
 OR-GP-1: Oral GP : present  
 OR-GP-2: Oral GP, shape : ?  
 OR-GP-3: Rectangular oral GP, details : ?  
 OR-GP-4: Oval oral GP, details : ?  
 VI-2: Ventral interradii, covering : naked  
 VI-3: Genital slit length : shorter than half interradius

=====

### *Ophiotypa simplex*

A-DP-10: Spurs at proximal edge of DAP (macerated): absent  
 A-DP-11: Accessory dorsal arm plates: absent  
 A-DP-2: DAPs per segment, number: single  
 A-DP-3: Proximal DAP series, position: separated  
 A-DP-4: Proximal DAPs, shape: fan-shaped  
 A-DP-8: Proximal DAPs, ornamentation: without conspicuous ornamentation  
 A-G-2: Integument of arms structure: naked  
 A-G-3: Arms shape: simple  
 A-S-10: Hook-shaped arm spines, position: at no segments  
 A-S-11: Hook-shaped spines shape : not possible  
 A-S-13: Arm spines, size pattern: all equal  
 A-S-14: Arm spines at proximal to median arm segments, number changes: decreasing distalwards  
 A-S-1: Arm spine position : lateral  
 A-S-2: Arm spines, orientation: predominantly parallel to arm axis (adpressed)  
 A-S-3: Longest spine, length: shorter than half a segment  
 A-S-4: Arm spine interior structure : massive  
 A-S-5: Arm spine surface ornamentation: smooth  
 A-S-7: Arm spine, cross section shape: round  
 A-S-8: Tip of arm spines shape: blunt  
 A-TS-3: Tentacle scales, shape: operculiform/round to oval  
 A-TS-4: Tentacle scales, size: accurately closing tentacle pore or larger  
 A-TS-5: Tentacle scales ornamentation : without longitudinal striation  
 A-TS-6: Tentacle scale placement : only at LAP  
 A-V-1: Dorso-distal muscular fossae, distalwards projecion: not projecting  
 A-V-2: Lateral saddle between muscular fossae structure: with single ridge  
 A-V-4: Zygocondyles in proximal vertebrae position: nearly parallel  
 A-V-6: Zygosphene fused with pair of zygocondyles size: not projecting beyond ventral edge of zygoc. or projecting beyond ventral edge of zygoc. with projecting part shorter than zygoc.  
 A-V-7: Needle-like thorns in dorsal groove : absent  
 A-VP-10: Proximal VAPs ornamentation: without conspicuous ornamentation  
 A-VP-12: Spurs at proximal edge of VAPs (macerated) : absent  
 A-VP-3: Proximal VAPs (in articulated plating), position: separated by lateral arm plates  
 A-VP-4: Distal edge of proximal VAPs (in macerated plate) shape: convex to straight  
 A-VP-5: Proximal edge of proximal VAPs (macerated) shape: convex to straight  
 A-VP-6: Distal portion of proximal VAPs (macerated) dimensions: as wide as proximal portion or narrower  
 A-VP-7: Lateral edge of proximalmost VAPs (macerated) shape: with clear incisisions/notches for tentacle  
 A-VP-8: Edge of tentacle notches with sockets/articulations for tentacle scales (e.g. Ophiomyces): absent  
 AB-GP-10: Conspicuous perforation in adradial surface of abGP: ?  
 AB-GP-11: Longitudinal groove in abradial surface: ?  
 AB-GP-12: distalmost genital papillae (on dorsal disc), shape: ?  
 AB-GP-13: Abradial GP crosses adradial GP : no  
 AB-GP-1: Abradial genital plate relative length : ?  
 AB-GP-2: Abradial genital plate shape : ?  
 AB-GP-3: Shape of adradio-distal articular structure of abradial genital plate : ?

AB-GP-6: Abradial genital plate covering : ?  
 AB-GP-7: AbGP plate papillae/granules, nature: ?  
 AB-GP-8: AbGP papillae, extension: ?  
 AB-GP-9: Ventral genital papillae, shape : ?  
 AD-GP-1: Adradial GP shape : cup-shaped  
 AD-GP-2: AdGP to RS articular structures, shape : flat  
 AD-GP-3: Bar-like adGP subtypes, shape : ?  
 AD-GP-4: Additional structures on adGP, shape : ?  
 D-GS-1: Dorsal disc covering, nature: without granules/spines  
 D-GS-2: Dorsal disc granules/spines extension : not possible  
 D-GS-5: Radial shield granule/spine covering : naked  
 D-GS-6: Dorsal disc granules/spines differentiation : not possible  
 D-P-1: Dorsal disc scalation : ?  
 D-P-3: Dorsal disc scale size : ?  
 D-P-4: Dorsal disc scale stereom structure : ?  
 D-P-5: Central primary plate relative size : larger than disc scales/clearly identifiable  
 D-P-6: Primary radial plates relative size : larger than scales  
 D-P-7: Primary radial plates position : in contact with CPP  
 D-RS-10: RS articulation shape : no special structure  
 D-RS-11: RS distal edge shape : other shape  
 D-RS-12: Conspicuous pore in inner side of RS : absent  
 D-RS-3: Radial shields (in articulated disc plating), length: between one third and half of the disc radius  
 D-RS-4: Radial shield pairs (in articulated disc plating), proximity: in contact over entire length  
 D-RS-5: Radial shield shape : half-circle  
 D-RS-6: Radial shield abradial edge shape : entire  
 D-RS-7: Radial shield, exposure: central part of RS to almost entire RS exposed  
 D-RS-9: Muscle attachment area on RS, shape: round, flat  
 LAP-G-1: LAPs, position: arched  
 LAP-G-3: LAPs with constriction: absent  
 LAP-G-4: Ventro-proximalwards projection of ventral portion of LAP: present  
 LAP-G-5: Ventralwards projection on ventro-distal tip of LAP (e.g. Ophiopallas): present  
 LAP-G-6: Dorsal edge distalwards ascending : absent  
 LAP-G-7: First LAPs, shape: like following LAPs  
 LAP-I-10: Additional dorsal structure on inner side of LAP merged with prox. one of two central knobs : not possible  
 LAP-I-15: Perforations on inner side of LAP, shape: small or inconspicuous  
 LAP-I-1: Inner side of LAP, main structure: more or less continuous ridge  
 LAP-I-3: Ridge on inner side of LAP, shape: entire  
 LAP-I-5: Ridge on inner side of LAP, stereom structure: same stereom as remaining inner surface of LAP  
 LAP-I-6: Ridge on inner side of LAP, shape: without major kink and with tongue-shaped dorsal tip  
 LAP-I-7: Large dorsal contact surface with opposite LAP: absent  
 LAP-I-8: Large ventral contact surface with opposite LAP : absent  
 LAP-I-9: Two central knobs on inner side of LAP, shape: not possible  
 LAP-O-10: Distalwards pointing scale-like structures on outer surface stereom presence: absent  
 LAP-O-2: Outer surface trabecular intersections, shape: protruding to form only knobs approx. the same size as stereom pores  
 LAP-O-8: Outer surface, structure: normal stereom  
 LAP-PE-1: Proximal edge of outer LAP, lined by discernible band of different (e.g. more finely meshed) stereom structure, position : over most of the proximal edge  
 LAP-PE-2: Spurs on prox. edge of outer LAP surface other than ventro-proximal one, size : ?  
 LAP-PE-3: Oblique, elongated spur on ventro-proximal tip of outer surface of LAP, presence : absent  
 LAP-PE-4: Proximal outer surface edge of LAP extension, central part extension: protruding  
 LAP-PE-8: Proximal edge of outer LAP surface with horizontal striation, extension : ?  
 LAP-SA-10: Articular structures, shape: like surrounding stereom  
 LAP-SA-11: When dorsal and ventral lobes absent, prox. edge of muscle opening, structure: even  
 LAP-SA-12: Dorsal and ventral lobes connection : not possible  
 LAP-SA-13: Dorsal and ventral lobe size : not possible  
 LAP-SA-14: Dorsal and ventral lobes, orientation to each other: not possible  
 LAP-SA-15: Dorsal and ventral lobes, shape: not possible  
 LAP-SA-16: Dorsal and ventral lobes, stereom structure: not possible

LAP-SA-17: Lobes, orientation on plate: not possible  
LAP-SA-19: Sigmoidal fold, expression: not possible  
LAP-SA-1: Spine articulations, position: on same level as remaining outer surface  
LAP-SA-20: When dorsal and ventral lobes absent, muscle opening encompassed by : simple stereom (e.g. Euryale), poorly defined circular elevation (e.g. Asteronyx) and/or vertical ridge distally and wavy ridge prox. (e.g. Gorgonocephalus)  
LAP-SA-21: When dorsal and ventral lobes absent, orientation of ridge bordering muscle opening: ?  
LAP-SA-22: when dorsal and ventral lobes absent, shape of ridge distally bordering muscle opening: ?  
LAP-SA-4: Spine articulation, separation from distal edge: directly adjacent to the distal edge of the LAP  
LAP-SA-5: Spine art. series extension : restricted to ventral or central portion of distal LAP edge  
LAP-SA-6: Spine art. size : all similar  
LAP-SA-7: Spine articulations, distance: only 2  
LAP-SA-8: Nerve and muscle openings separation: by small ridge if at all  
LAP-SA-9: Nerve opening, size: approx. as large as muscle opening  
LAP-TP-1: Tentacle opening beyond first segments under disc, shape: notch  
LAP-TP-2: Tentacle notch, direction: distalwards, close to horizontal midline of LAP  
LAP-TP-3: Tentacle notch externally lined by narrow groove : no  
LAP-TP-4: Inner side of notch with horizontally stretched stereom : no  
M-DP-1: Dental plate : entire  
M-DP-2: Dental plate geometry : equal width all over  
M-DP-3: Tooth sockets, pattern: single column throughout  
M-DP-5: Tooth sockets, predominant shape: simple opening  
M-DP-7: Tooth sockets, depth: depression or perforating DP without septum  
M-OAS-1: Oral shield length : covering less than one third of interradius  
M-OAS-2: Oral shield shape : wider than long  
M-OAS-3: Madrepore size : similar to other oral shields  
M-OAS-4: Madrepore inner side, structure: ?  
M-OAS-5: Madrepore inner opening, position: ?  
M-OAS-6: Adoral shields proximity: meeting proximal to oral shield  
M-OAS-8: Oral shield proximal portion shape : acute angle with straight to convex sides  
M-OAS-9: Oral shield distal portion shape : evenly convex  
M-OP-1: Oral plate shape : longer than high  
M-OP-2: Abradial muscle fossa shape: central depression  
M-OP-3: Abradial muscle attachment area stereom structure: normal stereom  
M-OP-4: Adradial muscle attachment area position: ?  
M-Pa-T-12: Tooth papillae, number: ?  
M-Pa-T-10: Second degree adoral shield spine, number: ?  
M-Pa-T-11: Lyman's ossicle, position: ?  
M-Pa-T-13: Accessory oral papillae: ?  
M-Pa-T-1: Lateral papillae, arrangement: single row along jaw edge  
M-Pa-T-2: Ventralmost tooth, position: exposed  
M-Pa-T-3: Buccal scale, shape: single, wide papilla (Amphilepis)  
M-Pa-T-4: infradental papillae, position: ?  
M-Pa-T-5: Adoral shield spine shape : ?  
M-Pa-T-6: Second degree ASS, position: ?  
M-Pa-T-7: Additional lateral papillae, shape: ?  
M-Pa-T-8: Teeth, shape: with round or slightly pointed tip (but never spine-like)  
M-Pa-T-9: Infradental papillae, relative size: ?  
M-SP-1: Second tentacle pore position : deep inside mouth slit  
OR-GP-1: Oral GP : absent  
OR-GP-2: Oral GP, shape : ?  
OR-GP-3: Rectangular oral GP, details : ?  
OR-GP-4: Oval oral GP, details : ?  
VI-2: Ventral interradial, covering : naked  
VI-3: Genital slit length : lost