

Two new genera and two new subgenera of the subfamilies Exothecinae and Doryctinae from the Old World (Hymenoptera: Braconidae)

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Key words: Hymenoptera; Braconidae; Exothecinae; Doryctinae; *Aulosaphes*; *Afrotritermus*; *Fijibracon*; *Spathius*.

Two new genera and two new subgenera of Exothecinae and Doryctinae are described and illustrated: *Afrotritermus* gen. nov. (with two species from South Africa: *Aulosaphes capensis* Hedqvist (type species) and *Afrotritermus natalicus* spec. nov.); *Fijibracon* gen. nov. (type species: *F. insularis* spec. nov., from Fiji Islands); *Spathius* (*Ambispathius* subgen. nov.) (with *Spathius* (*A.*) *anerois* spec. nov. from Fiji Islands (type species) and *S.* (*A.*) *sabahus* spec. nov. from Sabah, East Malaysia); *Spathius* (*Antespathius* subgen. nov.) (type species: *S.* (*A.*) *buonluoicus* spec. nov. from Vietnam).

Introduction

In the course of a visit to the Canadian National Collection, Ottawa in 1993 several new taxa were discovered. The new genus (*Afrotritermus* gen. nov. from South Africa) of the subfamily Exothecinae and new genus (*Fijibracon* gen. nov. from Fiji) and subgenus of *Spathius* Nees (*Ambispathius* subgen. nov. from Fiji) of the subfamily Doryctinae are described in the present paper from this collection. Additionally, a second species of *Spathius* (*Ambispathius*) and a new subgenus and species *Spathius* (*Antespathius*) *buonluoicus* spec. nov. are described from other collections. The morphological terms are used as defined by Tobias (1986).

The following abbreviations are used: POL - postocellar line; OOL - ocular-ocellar line; Od - maximum diameter of lateral ocellus; CNC - Canadian National Collection (Ottawa, Canada); RMNH - Nationaal Natuurhistorisch Museum (Leiden, The Netherlands); ZIP - Zoological Institute, Russian Academy of Sciences (St. Petersburg, Russia); ZML - Zoological Museum, Lund University (Lund, Sweden).

Taxonomy

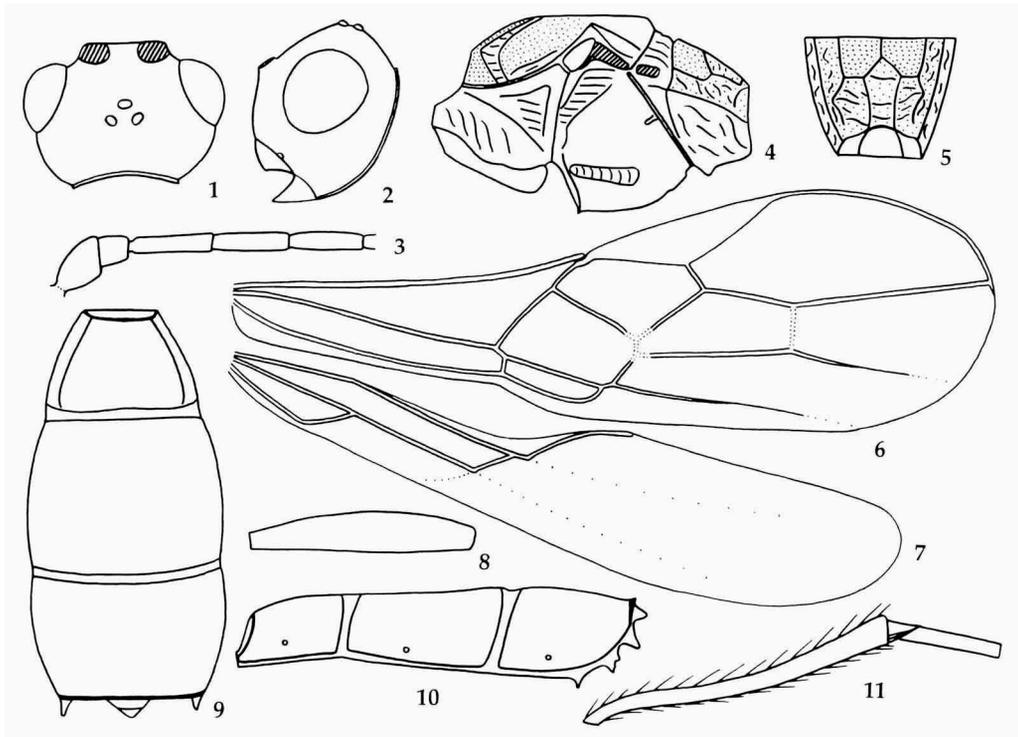
Afrotritermus gen. nov.

Type species: *Aulosaphes capensis* Hedqvist, 1963.

Etymology: from "afro" and "Tritermus", because this South African genus is closely related to the genus *Tritermus*. Gender: masculine.

Diagnosis.— *Afrotritermus* gen. nov. is related to Palaearctic *Tritermus* van Achterberg (van Achterberg, 1982), because of the three abdominal tergites are immovably fused. The new genus differs in the presence of the first radiomedial vein, having the brachial cell closed, the maxillary palpi 5-segmented and the labial palpi 3-segmented.

Description.— Head weakly transverse (figs 1, 13). Ocelli almost in equilateral triangle. Eye glabrous. Subocular (malar) suture absent. Occipital carina distinct and fused with hypostomal carina near mandible. Clypeal suture distinct. Palpi short. Maxillary palpi 5-segmented, labial palpi 3-segmented. Scapus thick, with distinct latero-apical cut (figs 3, 15). Flagellum filiform, slender; first flagellar segment equal to or slightly longer than second segment. Segments in apical third elongate. Apical segment without spine. Neck of prothorax short (fig. 4). Propleural lobe small. Mesoscutum rather densely granulate. Mesonotum distinctly and roundly elevated above prothorax. Notauli deep, wide and sculptured. Prescutellar depression long and sculptured. Scuto-scutellar suture distinct. Scutellum weakly concave. Sternaulus (= precoxal sulcus) rather deep, short and sculptured. Prepectal carina distinct. Meta-pleural flange long, narrow, rather pointed. Propodeum (figs 5, 20) without lateral tubercles, with distinct marginated areas, areola usually long. Pterostigma of fore wing (figs 6, 16) rather narrow; radial vein arising from middle of pterostigma. Radial cell not shortened. Recurrent vein distinctly postfurcal. Nervulus postfurcal. Brachial cell closed distally. Parallel vein interstitial. Nervellus of hind wing (figs 7, 17) present. First abscissa of medio-cubital vein nearly equal to second abscissa. Recurrent vein present, but unsclerotized. Second abscissa of costal vein 1.6-1.7 times first abscissa. Medial cell closed antero-distally, 0.4 times as long as hind wing. Legs long and slender. Hind coxa elongate oval. Hind femur (fig. 8) 5-5.5 times as long as wide. Hind tibial spurs short. Basitarsus of hind tarsus 0.7 times length of second-fifth segments com-



Figs 1-11, *Afrotritermus capensis* (Hedqvist). 1, head, dorsal aspect; 2, head, lateral aspect; 3, basal segments of antenna; 4, thorax, lateral aspect; 5, propodeum, dorsal aspect; 6, fore wing; 7, hind wing; 8, hind femur; 9, abdomen, dorsal aspect; 10, abdomen, lateral aspect; 11, hind tibia and basitarsus.

bined. First and second abdominal tergites (figs 9, 10, 18, 19) immovably fused. First and second sutures deep and complete. Dorsal carinae of first tergite semi-circularly united basally; dorsope small. Laterotergites of first-third tergites distinct (fig. 19). Third tergite almost straight posteriorly and usually with rather high transverse carina at posterior margin; usually with two small lateral tubercles posteriorly and some small teeth ventro-laterally (figs 9, 18).

Distribution.— Ethiopian Region (South Africa).

Key to species of the genus *Afrotritermus*

1. First tergite less narrowed basad, its apical width almost twice width near dorsope, and 1.4 times its length (fig. 9). Temple 0.8-0.9 times as long as transverse diameter of eye (dorsal view) (fig. 1). Vertex smooth. Medial carina of propodeum 0.75 times antero-lateral side of areola (fig. 5) *A. capensis* (Hedqvist)
- First tergite strongly narrowed basad, its apical width 2.4-2.5 times width near dorsope, and 1.6-1.8 times its length (fig. 18). Temple 0.6-0.8 times as long as transverse diameter of eye (dorsal view) (fig. 13). Vertex usually finely granulate. Medial carina of propodeum nearly equal to or slightly shorter than antero-lateral side of areola (fig. 20) *A. natalicus* spec. nov.

Afrotritermus capensis (Hedqvist, 1963), comb. nov.
(figs 1-11)

Aulosaphes capensis Hedqvist, 1963: 43.

Acanthormius capensis; Watanabe, 1968: 64; Shenefelt, 1975: 1139; van Achterberg, 1991: 16.

Material.— Holotype, ♂, (ZML), "Insect trap, Alt. ft 650", "S. Afr., Cape Prov., Cape Peninsula, Hout Bay, Skoorsteenkop, 2.ii.1951, N 166", "Holotypus *Aulosaphes capensis* sp. n., K.-J. Hedqvist det 1963". "Zool. Mus. Lund Sweden, Braconidae Type No 2482:1".

Holotype, ♂, body length 1.6 mm; fore wing length 1.4 mm.

Head.— Width of head 1.6 times its medial length, 1.2 times width of mesoscutum (without tegulae). Temple regularly and roundly narrowed behind eye, 0.9 times as long as transverse diameter of eye (dorsal view). Ocelli rather small; POL nearly equal to Od, OOL 2.8 times POL. Eye 1.3 times as high as broad. Cheek height 0.6 times height of eye, 1.4 times basal width of mandible. Face width 1.3 times eye height, 1.2 times height of face and clypeus combined. Head roundly narrowed below eyes. Antenna missing distally, remaining 9 segments. Scapus 1.5 times as long as wide. First flagellar segment 4.5 times as long as its apical width. Seventh flagellar segment 4.5 times as long as wide, as long as first segment.

Thorax (= Mesosoma).— Length 1.7 times its height. Medial lobe of mesoscutum with weak antero-lateral teeth. Prescutellar depression deep, long, sparsely crenulate, 0.5 times as long as scutellum.

Wings.— Length of fore wing 3 times its maximum width. Pterostigma 4 times as long as wide. Second radial abscissa 3 times first abscissa, 0.4 times third abscissa, 1.1 times first radiomedial vein. Second radiomedial cell 2.5 times as long as wide, 1.3 times as long as brachial cell. Discoidal cell 2.5 times as long as wide. Posterior abscissa of basal vein 2.5 times first abscissa and recurrent vein. Distance from nervulus to basal vein nearly equal to nervulus length.

Abdomen (= Metasoma).— Twice as long as its maximum width near middle, 1.2 times as long as mesosoma. First tergite roundly widened from base to apex, its apical width almost twice width near dorsope, 1.4 times its length. Second tergite almost square, its length equal to basal width, 0.85 times its maximum width, 1.5 times length of first tergite, 1.4 times medial length of third tergite. First ventrolateral tooth of third tergite single.

Sculpture.— Head smooth. Scutellum and mesopleura smooth. Propodeum with distinct marginated areas, medial carina 0.75 times antero-lateral side of areola; basolateral areas finely granulate, other parts of propodeum sparsely rugose. Three abdominal tergites densely striate, with fine and dense transverse rugae between striae; striae at third tergite weakly curved posteriorly.

Colour.— Body light reddish-brown, first and second abdominal tergites yellowish brown. Three basal segments of antenna light reddish-brown, other segments dark reddish-brown. Legs yellowish brown. Wings faintly infusate. Pterostigma brown.

Female.— Unknown.

Afrotritermus natalicus spec. nov.
(figs 12-21)

Material.— Holotype, ♂ (CNC), "[Republic of South Africa], Natal, 75 km WSW Estcourt, Cathedral Pks For. Sta., 20. xii. [19]79, S. & J. Peck". Paratypes: 3 ♂♂ (CNC, ZIP), same label as holotype.

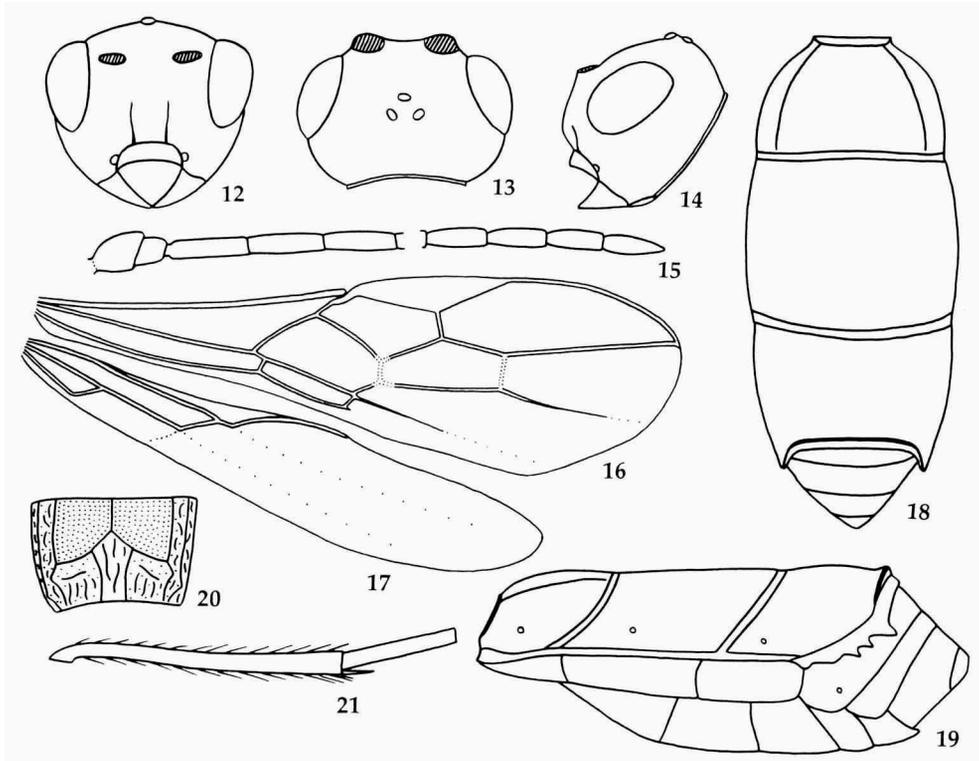
Males.— Body length 1.3-1.8 mm; fore wing length 1.2-1.6 mm.

Head.— Width of head 1.5-1.8 times its medial length, 1.2-1.3 times width of mesoscutum (without tegulae). Temple regularly and roundly narrowed behind eye, 0.6-0.8 times as long as transverse diameter of eye (dorsal view). Ocelli rather small; POL 1-1.5 times Od, OOL 2-3 times POL. Eye 1.2-1.4 times as high as broad. Cheek height 0.5-0.6 (sometimes 0.7) times height of eye, 1.2-1.5 times basal width of mandible. Face width 1.2-1.4 times eye height, 1.3-1.4 times height of face and clypeus combined. Clypeus distinctly convex. Hypoclypeal depression oval, its width nearly equal to distance from depression to eye. Head distinctly and roundly narrowed below eyes. Antenna 17-20-segmented, distinctly longer than body. Scapus 1.4-1.5 times as long as wide. First flagellar segment 4-4.5 times as long as its apical width. Penultimate segment 3-3.5 times as long as wide, 0.7-0.8 times as long as first segment, 0.9-1 times as long as apical segment.

Thorax.— Length 1.4-1.6 times its height. Medial lobe of mesoscutum with small and obtuse antero-lateral teeth. Prescutellar depression deep, rather long, with 3 carinae, rugulose-punctulate, 0.4-0.5 times as long as scutellum.

Wings.— Length of fore wing 3.4-3.6 times its maximum width. Pterostigma (3.8) 4.3-5 times as long as wide. Second radial abscissa 2-2.4 times first abscissa, 0.35-0.46 times third abscissa, 0.7-1.1 times first radiomedial vein. Sometimes basal third of first radiomedial vein unsclerotized. Second radiomedial cell 2.4-2.7 times as long as wide, 1.2-1.5 times as long as brachial cell. Discoidal cell 2-2.3 times as long as wide. Posterior abscissa of basal vein 2.4-3.7 times first abscissa, 2.4-3.2 times recurrent vein. Distance from nervulus to basal vein nearly equal to nervulus length.

Legs.— Hind tarsus nearly as long as hind tibia. Second tarsal segment 0.35-0.4 times as long as first segment, 0.9-1 times as long as fifth segment (without pretarsus).



Figs 12-21, *Afrotritermus natalicus* spec. nov. 12, head, frontal aspect; 13, head, dorsal aspect; 14, head, lateral aspect; 15, basal and apical segments of antenna; 16, fore wing; 17, hind wing; 18, abdomen, dorsal aspect; 19, abdomen, lateral aspect; 20, propodeum, dorsal aspect; 21, hind tibia and basitarsus.

Abdomen.— Length 1.8-2 times maximum width near middle, 1.2 times as long as thorax. First tergite strongly and roundly widened from base to apex, its apical width 2.4-2.5 times width near dorsope, 1.6-1.75 times its length. Second tergite almost square, its length 0.9-1 times basal width, about 0.8 times its maximum width, 1.4-1.6 times length of first tergite, 1.4 times medial length of third tergite. First ventro-lateral tooth of third tergite single.

Sculpture.— Head smooth, vertex usually finely granulate. Scutellum very finely granulate or smooth. Mesopleura smooth. Propodeum with distinct marginated areas, medial carina nearly equal to or slightly shorter than antero-lateral side of areola; basolateral areas densely and distinctly or finely granulate, other parts of propodeum rugulose-granulate. Three abdominal tergites densely striate, with fine and dense transverse rugae between striae; striae at third tergite weakly curved posteriorly; sometimes third tergite densely reticulate.

Colour.— Body reddish-brown or dark reddish-brown, first and second abdominal tergites sometimes yellowish brown. Two basal segments of antenna reddish-brown or dark reddish-brown, other segments almost black. Palpi light brown. Legs light brown or brown, tibiae and tarsi darker. Wings faintly infuscate. Pterostigma brown.

Female.— Unknown.

Remark.— Besides the type material, I have seen a ♂ of this species from Canada (CNC; "Ont., Hamilton, 16.ix.1982, M. Sanborne"), but most likely it is a South African specimen mixed up with Canadian specimens and erroneously labelled.

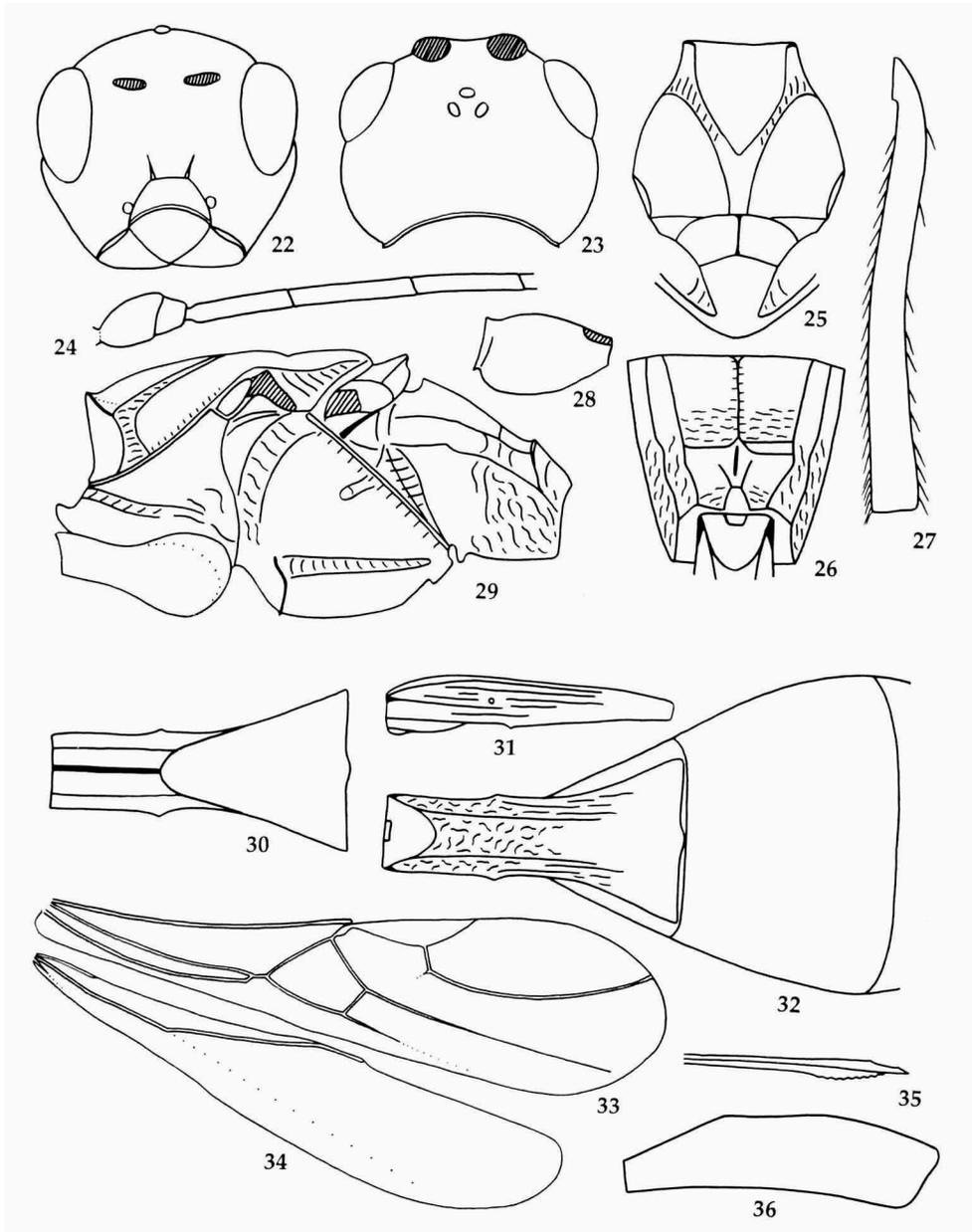
Fijibracon gen. nov.

Type species: *Fijibracon insularis* spec. nov.

Etymology: from "Fiji" (type locality) and "Bracon" (the nominotypical genus of the family Braconidae). Gender: masculine.

Diagnosis.— *Fijibracon* gen. nov. is related to Neotropical *Percnobracon* Kieffer, 1910, because of the first abdominal tergite is petiolate, the nervellus and second abscissa of the costal vein of hind wing are absent, the labial palpi is 3-segmented, and the propodeal bridge is present. The new genus differs by having the first radio-medial vein and second abscissa of longitudinal anal vein of fore wing missing, the mediocubital vein of fore wing straight, the fore wing completely setose, the notauli deep and complete, the hind basitarsus very long (slightly shorter than second-fifth segments of hind tarsus combined), the second-sixth abdominal tergites without separated laterotergites.

Description.— Head weakly transverse (fig. 23). Ocelli small and in equilateral triangle. Eye distinctly and sparsely setose. Occipital carina distinct and fused with hypostomal carina near mandible. Subocular (malar) suture absent. Clypeal suture distinct. Palpi slender; maxillary palpi long and 6-segmented, labial palpi very short and 3-segmented. Scapus thick (fig. 24). Flagellum filiform, slender; first flagellar segment 0.8 times as long as second segment. Neck of prothorax short, with distinct pronotal carina, which not connected with posterior margin of pronotum. Propleural lobe large. Mesonotum distinctly and almost perpendicularly elevated above prothorax (fig. 29). Medial lobe of mesonotum with distinct pointed antero-lateral corners. Notauli deep, wide, complete, crenulate, fused in posterior third of mesoscutum (fig. 25). Prescutellar depression long and sculptured. Scuto-scutellar suture distinct. Postscutellum with long and pointed medial tooth. Sternaulus (= precoxal sulcus) deep, rather long, sculptured. Prepectal carina distinct. Metapleural flange short, slender, and pointed (fig. 29). Propodeum (fig. 26) without lateral tubercles, with very narrow propodeal bridge between hind coxa and abdominal foramen. Pterostigma of fore wing (fig. 33) rather narrow; radial vein arising almost from middle of pterostigma. Radial cell not shortened. Second radiomedial vein completely absent; first radiomedial vein mostly absent, present in anterior third only. Discoidal cell shortly petiolate. Parallel vein interstitial. Nervulus distinctly antefurcal. Brachial cell absent. Second abscissa of longitudinal anal vein absent. Nervellus and recurrent vein of hind wing (fig. 34) missing. Second abscissa of costal vein and radial vein indistinct; medial cell widely opened antero-distally. Fore and middle tibiae with numerous thin spines along the anterior edge. Hind coxa without basoventral tooth (fig. 28). All femora with small dorsal protuberances in basal third. Hind femur 4 times as long as wide (fig. 36). Hind tibial spurs short. Basitarsus of hind tarsus slightly shorter than second-fifth segments combined. First abdominal tergite petiolate; acrosternite nearly 0.4 times as long as tergite, its apical margin placed behind spiracular tubercles in basal third (figs 30, 31). Dorsope of first tergite small and shallow, dorsal carinae in basal



Figs 22-36, *Fijibracon insularis* gen. nov. & spec. nov. 22, head, frontal aspect; 23, head, dorsal aspect; 24, basal segments of antenna; 25, mesothorax, dorsal aspect; 26, propodeum, dorsal aspect; 27, hind tibia; 28, hind coxa; 29, thorax, lateral aspect; 30, first abdominal tergite, ventral aspect; 31, first abdominal tergite, lateral aspect; 32, first-third abdominal tergites, dorsal aspect; 33, fore wing; 34, hind wing; 35, apical end of ovipositor; 36, hind femur.

four fifths distinct and subparallel-sided (fig. 32). Second suture absent. Second tergite without separated laterotergite. Hypopygium narrowed apically and pointed. Ovipositor long, its dorsal valve has a double node at apex (fig. 35).

Distribution.— Indo-Australian (Fiji Islands).

Fijibracon insularis spec. nov.
(figs 22-36)

Material.— Holotype, ♀ (CNC), "Fiji, Viti Levu, 10 km N Galoa, 29.viii.1978, S. & J. Peck".

Female.— Body length 2.5 mm; fore wing length 2.1 mm.

Head.— Width 1.4 times its medial length. Temple behind eyes anteriorly convex, posteriorly roundly narrowed, 1.3 times as long as transverse diameter of eye (dorsal view). POL 0.75 times Od, OOL 5 times POL. Eye 1.4 times as high as broad. Cheek height 0.6 times height of eye, nearly equal to basal width of mandible. Face width 1.2 times eye height, 1.3 times height of face and clypeus combined. Clypeus with short flange along lower margin. Hypoclypeal depression round, its width nearly equal to distance from depression to eye. Head distinctly and roundly narrowed below eyes. Antenna: apical segments missing, remaining 19 segments. Scapus 1.5 times as long as wide. First flagellar segment nearly 5 times as long as its apical width, second segment 6.5 times as long as its width.

Thorax.— Length 1.8 times its height. Prescutellar depression with medial carina, nearly 0.5 times as long as scutellum. Mesopleural pit distinct.

Wings.— Length of fore wing 3.8 times its maximum width. Pterostigma 4.5 times as long as wide, 0.6 times as long as metacarpus. First radial abscissa nearly as long as maximum width of pterostigma, 0.8 times recurrent vein, 0.1 times second radial abscissa, which is distinctly curved. Posterior abscissa of basal vein 2.5 times recurrent vein. Discoidal cell 1.25 times as long as wide.

Legs.— Hind tarsus nearly as long as hind tibia, which is distinctly curved. Second tarsal segment 0.3 times as long as first segment, as long as fifth segment (without pretarsus). Hind tibia with very short and sparse pale hairs dorsally, length of these hairs distinctly less than maximum width of tibia.

Abdomen.— First tergite subparallel-sided in anterior half, distinctly widened in posterior half. Apical width of first tergite 2.2 times its minimum width, its length 1.7 times apical width, 1.6 times length of propodeum. Length of second and third tergites combined almost equal to basal width of second tergite, 0.7 times its maximum width, 0.7 times length of first tergite. Ovipositor sheath slightly shorter than body, 1.2 times as long as fore wing.

Sculpture.— Head, mesoscutum, scutellum and mesopleura smooth. Metapleura smooth in anterior half, rugulose in posterior half. Propodeum reticulate-rugulose, smooth basally, with long basolateral areas and medial carina in basal half; areola indistinct. Legs smooth. First abdominal tergite sparsely rugulose, smooth in apical quarter. Other tergites smooth.

Colour.— Body reddish-brown, thorax laterally almost black. Antenna dark reddish-brown, two basal segments yellow. Palpi light brown. Legs reddish-brown; hind coxae, almost all trochanters, all femora apically, and tibiae basally yellowish. Wings infusate. Pterostigma dark brown, its basal two fifth pale.

Male.— Unknown.

Genus *Spathius* Nees, 1818
Subgenus *Ambispathius* subgen. nov.

Type species: *Spathius (Ambispathius) anervis* spec. nov.

Etymology: from "ambi" (Latin for "near") and "*Spathius*" (a generic name from subfamily Doryctinae).

Diagnosis.— The new subgenus *Ambispathius* subgen. nov. differs from the nominotypical subgenus *Spathius* Nees in the loss of the first radiomedial vein of fore wing.

Description.— Head transverse (figs 38, 51). Ocelli small, in triangle with base 1.2-1.3 times its sides. Eye distinctly and rather densely setose or glabrous. Occipital carina distinct and fused with hypostomal carina near mandible. Subocular (malar) suture absent (figs 37, 50). Clypeal suture distinct. Palpi long; maxillary palpi 6-segmented, labial palpi 4-segmented. Scapus thick and without apical lobe. Flagellum filiform, slender; first flagellar segment 1.1-1.2 times as long as second segment. Apical segment without spine (figs 40, 53). Pronotal carina of prothorax indistinct or distinct and not fused with posterior margin of pronotum. Propleural lobe distinct. Mesonotum highly and roundly or almost perpendicularly elevated above prothorax (figs 41, 54). Notauli deep or shallow, narrow, finely crenulate. Sternaulus (= precoxal sulcus) deep, narrow, sculptured. Prepectal carina high. Propodeum usually with short and pointed lateral tubercles (fig. 42). Radial cell of fore wing unshortened. First radiomedial vein completely absent (figs 45, 58). Parallel vein interstitial. Nervulus postfurcal. Mediocubital vein at middle not curved downward to anal vein. Brachial cell closed apically before recurrent vein. First abscissa of mediocubital vein of hind wing (figs 46, 59) 0.6 times second abscissa. Fore and middle tibiae with rows of thin spines along the anterior edge. Hind coxa without basoventral tooth (figs 48, 61). Basitarsus of hind tarsus 0.6-0.7 times second-fifth segments combined. First abdominal tergite petiolate; acrosternite 0.6 times as long as tergite (fig. 43). Spiracular tubercles distinct in basal 0.4 times of first tergite; dorsople very small. Second suture absent (figs 44, 57). Ovipositor straight or slightly curved downward.

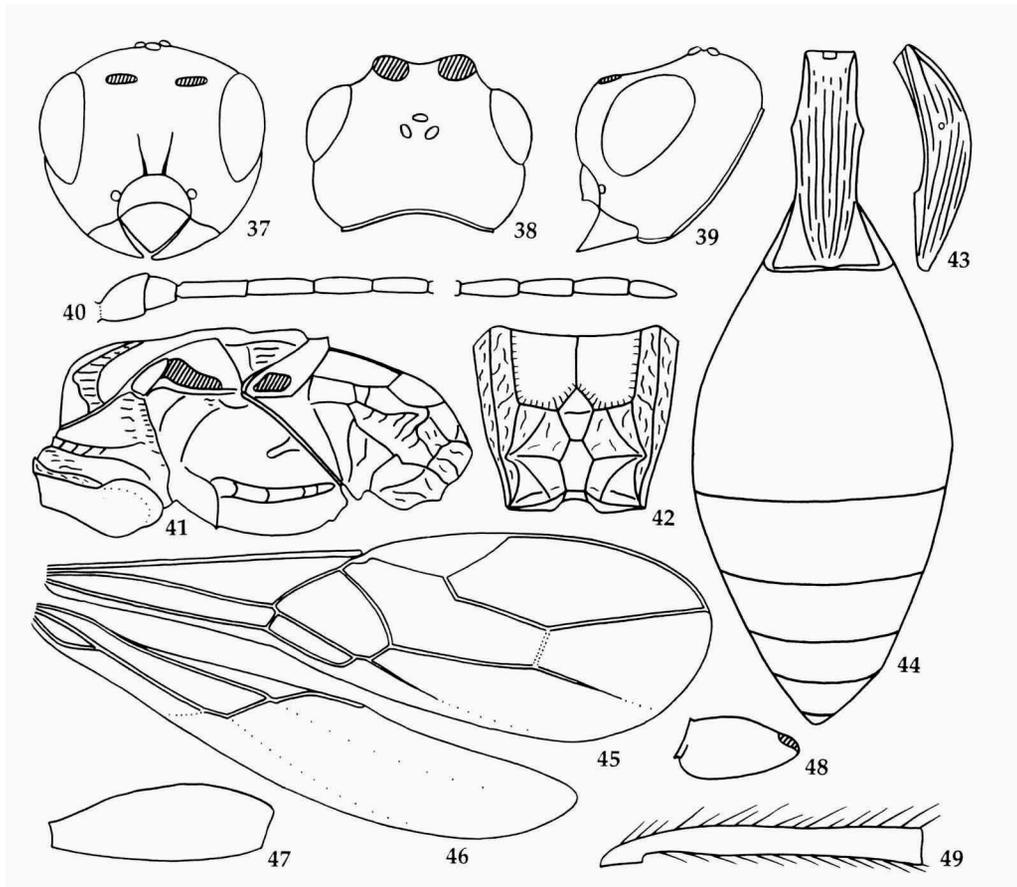
Distribution.— Indo-Australian (Fiji Islands, Malaysia).

Key to species of subgenus *Ambispathius*

1. Eye rather densely setose. Length of temple nearly equal to transverse diameter of eye (dorsal view). Cheek height 0.5 times height of eye. Length of thorax 2.2 times its height. Length of first abdominal tergite nearly twice its apical width. Mesonotum smooth *S.(A.) anervis* spec. nov.
- Eye glabrous. Length of temple 0.5 times transverse diameter of eye (dorsal view). Cheek height 0.3 times height of eye. Length of thorax 1.6 times its height. Length of first abdominal tergite 2.7 times its apical width. Mesonotum entirely granulate *S.(A.) sabahus* spec. nov.

Spathius (Ambispathius) anervis spec. nov.
(figs 37-49)

Material.— Holotype, ♀ (CNC), "Fiji, Viti Levu, Lami, 0-200 m, ii.1981, N.L.H. Krauss".



Figs 37-49, *Spathius (Ambispathius) anervis* spec. nov. 37, head, frontal aspect; 38, head, dorsal aspect; 39, head, lateral aspect; 40, basal and apical segments of antenna; 41, thorax, lateral aspect; 42, propodeum, dorsal aspect; 43, first abdominal tergite, lateral aspect; 44, abdomen, dorsal aspect; 45, fore wing; 46, hind wing; 47, hind femur; 48, hind coxa; 49, hind tibia.

Holotype, ♀, body length 2.3 mm; fore wing length 1.7 mm.

Head.— Width 1.4 times its medial length. Temple roundly narrowed behind eyes, length of temple nearly equal to transverse diameter of eye (dorsal view). POL nearly equal to Od, 0.3 times OOL. Eye 1.4 times as high as broad. Cheek height 0.5 times height of eye, almost equal to basal width of mandible. Face width 1.2 times eye height, 1.2 times height of face and clypeus combined. Clypeus with distinct flange along lower margin. Hypoclypeal depression round, its width slightly shorter than distance from depression to eye. Tentorial pits distinct. Head roundly narrowed below eyes. Maxillary palpi nearly 1.3 times height of head (without mandibles). Antenna 21-segmented. First flagellar segment nearly 5 times as long as its apical width. Penultimate segment nearly 4 times as long as wide, 1.2 times as long as apical segment.

Thorax.— Length 2.2 times its height. Prescutellar depression rather short, deep, with 3 carinae, mostly smooth. Subalar depression deep and completely smooth.

Wings.— Length of fore wing 3.3 times its maximum width. Pterostigma 0.7 times as long as metacarpus. Second radial abscissa 4 times first abscissa, 0.6 times third abscissa. Discoidal cell 1.7 times as long as wide. In hind wing, medial cell 0.4 times as long as wing. Radial and medial vein almost indistinct.

Legs.— Hind femur nearly 3 times as long as wide. Hind tarsus 0.9 times as long as hind tibia. Second tarsal segment 0.4 times as long as first segment, 0.8 times as long as fifth segment (without pretarsus). Hind tibia with rather long, dense, semi-erect, pale hairs dorsally, length of these hairs 0.8-1 times maximum width of tibia.

Abdomen.— First tergite widened at level of spiracles and in apical quarter. Apical width of first tergite 1.6 times its width at level of spiracles, twice its minimum width; length of tergite nearly twice its apical width, 1.3 times length of propodeum, 0.5 times length of other tergites combined. Length of second and third tergites combined 1.8 times basal width of second tergite, 0.8 times its maximum width. Ovipositor sheath 1.4 times first tergite, 0.35 times as long as fore wing.

Sculpture.— Head, mesonotum and mesopleura smooth. Metapleura smooth in anterior half, rugose in posterior half. Propodeum very finely reticulate, sometimes smooth, with distinct marginated areas, medial carina present in basal third; areola distinct, small and pentagonal; petiolate area long and rather narrow. Legs smooth, hind coxae striate dorsally. First abdominal tergite striate, latero-apically smooth. Other tergites smooth.

Colour.— Head and thorax dark reddish-brown, abdomen reddish-brown. Antenna dark reddish-brown, two basal segments yellowish-brown. Palpi yellow. Legs light reddish or yellowish-brown. Wings infusate. Pterostigma brown.

Male.— Unknown.

Spathius (Ambispathius) sabahus spec. nov.
(figs 50-62)

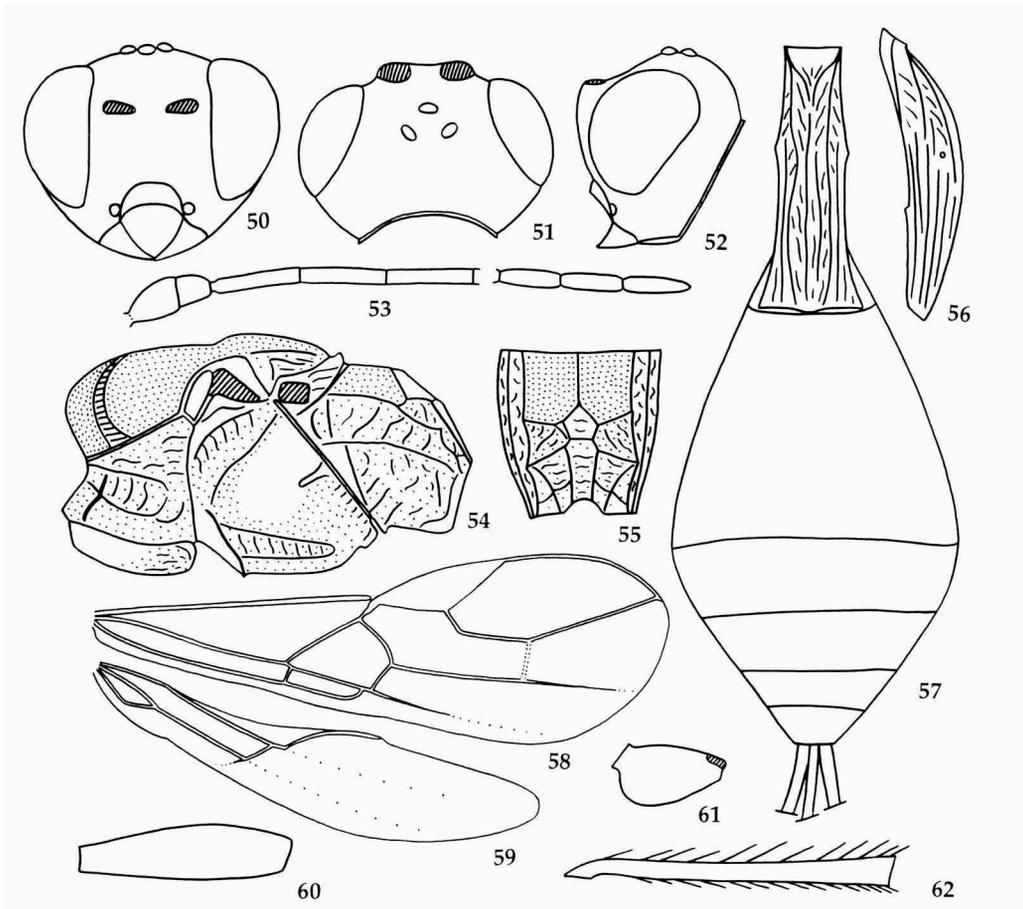
Material.— Holotype, ♀ (RMNH), "Malaysia - SW. Sabah, nr Long Pa Sia (West), c. 1200 m, 2-14.iv.1987, Mal. trap 7, RMNH'87, C. v. Achterberg".

Holotype, ♀, body length 2.1 mm; fore wing length 1.8 mm.

Head.—Width 1.7 times its medial length. Temple roundly narrowed behind eyes, length of temple 0.5 times transverse diameter of eye (dorsal view). POL nearly equal to Od, 0.6 times OOL. Eye 1.2 times as high as broad. Cheek height 0.3 times height of eye, 0.8 times basal width of mandible. Face width 0.9 times eye height, 1.2 times height of face and clypeus combined. Clypeus with very short flange along lower margin. Hypoclypeal depression round, its width 1.3 times distance from depression to eye. Tentorial pits distinct. Head strongly roundly narrowed below eyes. Antenna 22-segmented. First flagellar segment nearly 6 times as long as its apical width. Penultimate segment 3.5 times as long as wide, 1.2 times as long as apical segment.

Thorax.— Length 1.6 times its height. Prescutellar depression long, deep, with 3 carinae, finely granulate. Subalar depression rather deep and granulate-rugulose.

Wing.— Length of fore wing 2.8 times its maximum width. Pterostigma 0.7 times as long as metacarpus. Second radial abscissa 3.3 times first abscissa, 0.7 times third abscissa. Discoidal cell 1.5 times as long as wide. In hind wing, medial cell 0.4 times as long as wing. Radial and medial vein unsclerotized.



Figs 50-62, *Spathius (Ambispathius) sabahus* spec. nov. 50, head, frontal aspect; 51, head, dorsal aspect; 52, head, lateral aspect; 53, basal and apical segments of antenna; 54, thorax, lateral aspect; 55, propodeum, dorsal aspect; 56, first abdominal tergite, lateral aspect; 57, abdomen, dorsal aspect; 58, fore wing; 59, hind wing; 60, hind femur; 61, hind coxa; 62, hind tibia.

Legs.— Hind femur nearly 4 times as long as wide. Hind tarsus 0.8 times as long as hind tibia. Second tarsal segment 0.4 times as long as first segment, almost as long as fifth segment (without pretarsus). Hind tibia with rather long, dense, semi-erect, pale hairs dorsally, length of these hairs 1.2-1.4 times maximum width of tibia.

Abdomen.— First tergite weakly widened from base to apex. Apical width of first tergite 1.4 times its width at level of spiracles, twice its minimum width; length of tergite 2.7 times its apical width, 1.8 times length of propodeum, 0.7 times length of other tergites combined. Length of second and third tergites combined 1.7 times basal width of second tergite, 0.9 times its maximum width. Ovipositor sheath as long as first tergite, 0.3 times as long as fore wing.

Sculpture.— Head smooth. Mesonotum densely and finely granulate. Mesopleura very finely granulate, smooth medially. Metapleura rugose-granulate. Propodeum finely reticulate, sometimes smooth, with distinct marginated areas, medial carina present in basal two fifth; areola distinct, short and pentagonal; petiolate area

long and rather narrow. Legs smooth. First abdominal tergite striate, finely and densely reticulate between striae. Other tergites smooth.

Colour.— Head light reddish-brown, darker dorsally. Thorax and first tergite black, other tergites of abdomen dark reddish-brown. Antenna dark reddish-brown, four basal segments yellowish-brown. Palpi pale yellow. Legs yellow. Wings faintly infusate. Pterostigma brown.

Male.— Unknown.

Subgenus *Antespathius* subgen. nov.

Type species: *Spathius (Antespathius) buonluoicus* spec. nov.

Etymology: from "ante" (Latin for "before") and "*Spathius*" (generic name from subfamily Doryctinae).

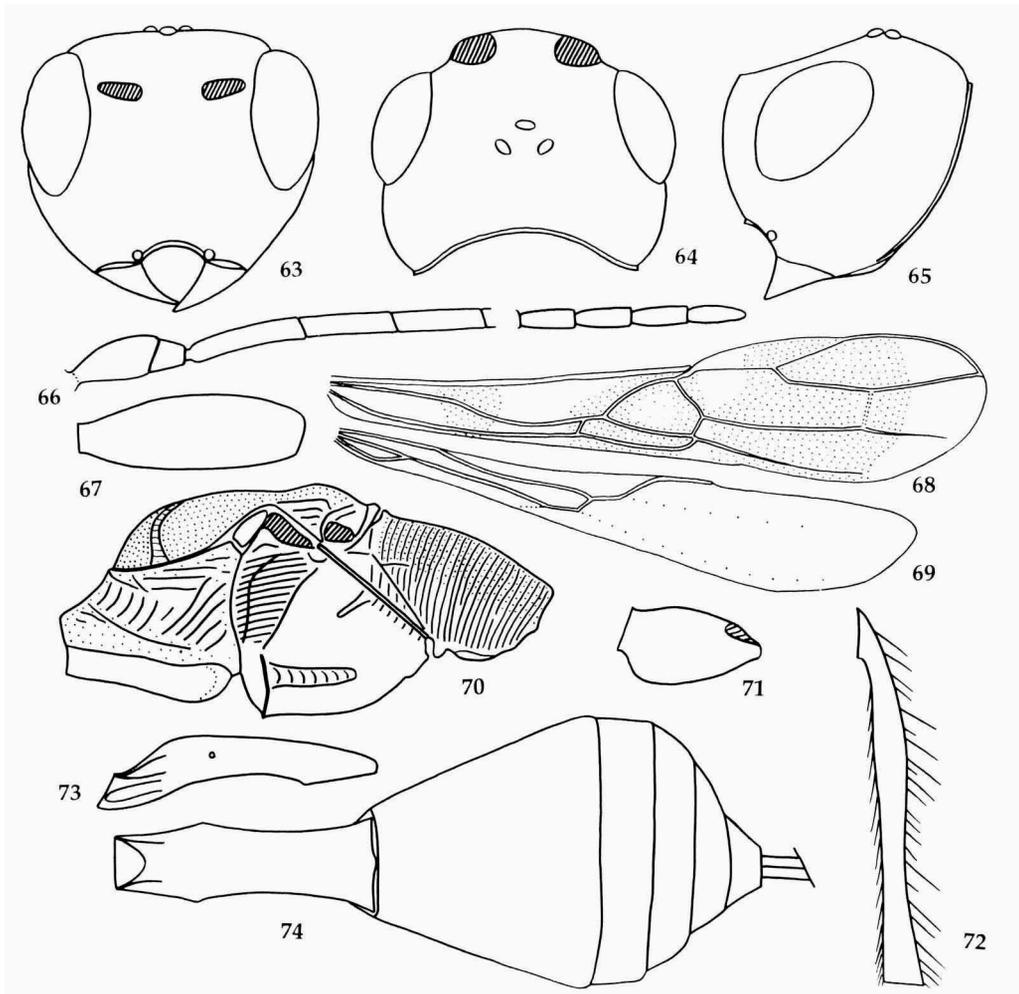
Diagnosis.— *Antespathius* subgen. nov. differs from the nominotypical subgenus *Spathius* Nees by the loss of the first radiomedial vein of fore wing and the antefurcal position of nervulus of fore wing; from subgenus *Ambispathius* by the antefurcal position of nervulus, the strongly curved medially mediocubital vein (to anal vein) and the densely transversely aciculate face.

Description.— Head weakly transverse (fig. 64). Ocelli small, in triangle with base 1.3 times its sides. Eye glabrous. Occipital carina distinct and not fused with hypostomal carina near mandible. Subocular (malar) suture absent (fig. 63). Clypeal suture absent. Face very densely transversely aciculate (like surface of gramophone record). Palpi long; maxillary palpi 6-segmented, labial palpi 4-segmented. Scapus rather thick and without apical lobe. Flagellum filiform, slender; first flagellar segment 1.2-1.3 times as long as second segment. Apical segment without spine (fig. 66). Pronotal carina of prothorax fine and connected medially with posterior margin of pronotum (but not fused). Propleural lobe distinct. Mesonotum roundly elevated above prothorax (fig. 70). Notauli deep, but shallow in posterior half, narrow, finely crenulate. Sternaulus (= precoxal sulcus) deep, narrow, rather short, crenulate. Prepectal carina high. Radial cell of fore wing slightly shortened. First radiomedial vein completely absent (fig. 68). Parallel vein interstitial. Nervulus distinctly antefurcal. Mediocubital vein at middle with deep downward sweep to anal vein. Brachial cell closed apically almost at level of recurrent vein. First abscissa of mediocubital vein of hind wing 0.4-0.5 times second abscissa (fig. 69). Fore and middle tibiae with rows of thin spines along the anterior edge. Hind coxae without basoventral tooth (fig. 71). Basitarsus of hind tarsus 0.6 times second-fifth segments combined. First abdominal tergite petiolate; acrosternite 0.7 times as long as tergite. Spiracular tubercles distinct in basal 0.35 times of first tergite; dorsope very small. Second suture absent (fig. 74). Ovipositor straight.

Distribution.— Indo-Australian (Vietnam).

Spathius (Antespathius) buonluoicus spec. nov.
(figs 63-74)

Material.— Holotype, ♀ (ZIP), "Vietnam, prov. GaiLai-ConTum, 20 km N Buon-Luoi, Tram Lap", "1-14.xii.1988, A. Sharkov". Paratypes: 10 ♀ + 3♂ (ZIP, RMNH), topotypic, 21-30.xi. or 1-14.xii.1988.



Figs 63-74, *Spathius (Antespathius) buonluoicus* spec. nov. 63, head, frontal aspect; 64, head, dorsal aspect; 65, head, lateral aspect; 66, basal and apical segments of antenna; 67, hind femur; 68, fore wing; 69, hind wing; 70, thorax, lateral aspect; 71, hind coxa; 72, hind tibia; 73, first abdominal tergite, lateral aspect; 74, abdomen, dorsal aspect;

Female types.— Body length 2.6-3.1 mm; fore wing length 1.9-2.2 mm.

Head.— Width 1.3-1.4 times its medial length. Temple roundly narrowed behind eyes, length of temple 0.7-0.8 times transverse diameter of eye (dorsal view). POL 1.3-1.7 times Od, 0.4-0.5 times OOL. Eye 1.2-1.3 times as high as broad. Cheek height 0.6 times height of eye, 1-1.2 times basal width of mandible. Face width 1.1-1.2 times eye height, almost equal to height of face and clypeus combined. Clypeus with flange along lower margin. Hypoclypeal depression round, its width 1.5-1.8 times shorter than distance from depression to eye. Tentorial pits distinct. Head roundly narrowed below eyes. Maxillary palpi nearly as long as height of head (without mandibles). Antenna 25-28-segmented. First flagellar segment 4.5-5.3 times as long as its apical width. Penultimate segment 2.7-3 times as long as wide, nearly as long as apical segment.

Thorax.— Length 2.1 times its height. Prescutellar depression long, deep, with 3 carinae, sculptured. Subalar depression shallow and rugulose-striate.

Wing.— Length of fore wing 4.8-5 times its maximum width. Pterostigma 1-1.1 times as long as metacarpus. Second radial abscissa 6-6.7 times first abscissa, 0.8-1 times third abscissa. Discoidal cell 1.5-1.8 times as long as wide. Distance from nervulus to basal vein 0.5-1.5 times nervulus length. Medial cell of hind wing 0.42-0.45 times as long as wing. Radial and medial vein almost indistinct. Basal vein unsclerotized and strongly antefurcal.

Legs.— Hind femur nearly 3 times as long as wide. Hind tarsus nearly as long as hind tibia. Second tarsal segment 0.5 times as long as first segment, 1.1-1.2 times as long as fifth segment (without pretarsus). Hind tibia with rather long, dense, semi-erect, pale hairs dorsally, length of these hairs 0.5-1 times maximum width of tibia.

Abdomen.— First tergite widened at level of spiracles and in apical fifth. Apical width of first tergite 1.2-1.4 times its width at level of spiracles, 1.6-1.9 times its minimum width; length of tergite 2.7-3 times its apical width, 1.4-1.5 times length of propodeum, 0.63-0.67 times length of other tergites combined. Length of second and third tergites combined nearly twice basal width of second tergite, 0.75-0.8 times its maximum width. Ovipositor sheath 1.5 times first tergite, 0.42-0.46 times as long as fore wing.

Sculpture.— Vertex finely transversely striate, frons aciculate, temple almost smooth or finely aciculate. Mesonotum densely and finely granulate. Mesopleura smooth. Metapleura reticulate-rugulose. Propodeum reticulate-rugulose, densely granulate in basal half and between rugae, without areas, medial carina present in basal third. Legs granulate. First abdominal tergite rugulose-striate. Second tergite concentrically aciculate, third-fifth tergites densely and (very) finely transversely aciculate.

Colour.— Body dark reddish-brown, head paler; sometimes head, thorax and first abdominal tergite reddish-brown. Antenna dark reddish-brown, basal segments lighter. Palpi dark reddish-brown. Legs reddish-brown or dark reddish-brown, all tarsi (excluding fifth segments), middle and hind coxae mostly and sometimes hind femur light reddish-brown; middle and hind tibiae basally pale yellow. Wings light with dark brown spots near middle of medial cell, along basal and recurrent veins and near radiomedial cell. Pterostigma brown, pale yellow in basal third or two fifth.

Male.— Body length 2.6-2.8 mm; fore wing length 1.7-2 mm. First abdominal tergite slender, its length 3.6 times apical width, 1.5-1.6 times length of propodeum. Otherwise similar to female.

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References

- Achterberg, C. van, 1982. A new genus of the Rogadinae-Lysitermini from Kazakhstan (Hymenoptera, Braconidae).— Ent. Ber., Amst. 42: 125-128.

- Achterberg, C. van, 1991. Revision of the genera of the Afrotropical and W. Palaearctical Rogadinae Foerster (Hymenoptera: Braconidae).— Zool. Verh. Leiden 273: 1-102.
- Hedqvist, K.-J., 1963. Notes on Hormiinae with description of new genera and species (Hym., Ichneumonoidea, Braconidae).— Ent. Tidskr. 84: 30-61.
- Shenefelt, R.D., 1975. Braconidae 8. Exothecinae, Rogadinae.— Hym. Cat. 12: 1115-1262.
- Watanabe, C. 1968. A revision of the genus *Acanthormius* Ashmead, with description of six new species (Hymenoptera, Braconidae).— Insects Matsumurana 30: 57-68.

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