Contributions to the knowledge of Leucosiidae V. *Coleusia* gen. nov. (Crustacea: Brachyura)

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Galil, B.S. Contributions to the knowledge of Leucosiidae V. *Coleusia* gen. nov. (Crustacea: Brachyura). Zool. Med. Leiden 80-4 (5), 10.xi.2006: 55-69, figs 1-5.— ISSN 0024-0672.
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Key words: Decapoda; Leucosiidae; *Leucosia*; *Coleusia*; new genus; new species; Indo-Pacific.
A new genus, *Coleusia*, is established for *Leucosia* species with segments 3-5 of the male abdomen fused, the shaft of the male's first pleopod coiled thrice on its axis, bearing distally a setose lobe and an elongate apical process: *L. biannulata* Tyndale-Biscoe & George, 1962, *L. magna* Tyndale-Biscoe & George, 1962, *L. signata* Paulson, 1875, and *L. urania* (Herbst, 1801), and a new species: *C. rangita*. The species are described or redescribed and illustrated, extended synonymies are given, and a key for their identification is provided.

Introduction

A study of the extensive collections of the Nationaal Natuurhistorisch Museum, Leiden (formerly Rijksmuseum van Natuurlijke Historie), together with other major collections (listed below), that has enabled re-examination of many type specimens and much of the published material, allowed redefinition of the *Leucosia* Weber, 1795, and establishment of new genera for species previously assigned to that genus (Galil, 2003a, b; 2005a,b; 2006). A new genus is established for *Leucosia* species having the male abdomen with segments 3-5 fused, the shaft of the first male pleopod coiled thrice on its axis, bearing distally a setose lobe and an elongate apical process: *L. biannulata* Tyndale-Biscoe & George, 1962, *L. magna* Tyndale-Biscoe & George, 1962, *L. signata* Paulson, 1875, and *L. urania* (Herbst, 1801), and a new species, *C. rangita*; the latter is described here. The species are described or redescribed and illustrated, extended synonymies are given, and a key for their identification is provided.

Abbreviations: cl. – carapace length, measured along the vertical median line of the carapace; coll. – collected by; id. – identified by; I. – Island.

The material examined was lent by the following institutions: Museo Zoologico dell'Università di Firenze (MZUF); Muséum national d'Histoire naturelle, Paris (MNHN), the Natural History Museum, London (NHM), National Taiwan Ocean University, Keelung (NTOU), the Queensland Museum, Brisbane (QM), the Nationaal Natuurhistorisch Museum, Leiden (formerly Rijksmuseum van Natuurlijke Historie) (RMNH), the South African Museum, Cape Town (SAM), the National Collections, Tel Aviv University (TAU), the National Museum of Natural History, Smithsonian Institution, Washington, D.C. (USNM), and the Western Australian Museum, Perth (WAM).

Coleusia **gen. nov**.

Type species.— *Cancer urania* Herbst, 1801; gender: feminine.

Diagnosis.— Carapace subpentagonal, globose; regions of carapace indistinct.

Dorsal surface of carapace glabrous, smooth or punctate. Frontal region produced, upcurved, laterally concave. Antennular fossa sealed by basal antennular segment. Antennae short, inserted between antennular fossa and orbit. Orbits small, rounded, outer orbital margin unisutured, anterior bilobed margin of efferent branchial channel forms part of lower orbital margin. Eyes retractable. External maxillipeds concealing trapezoid buccal opening; endopod merus triangulate, as long as ischium; in female, endopod with setose fringe lengthwise, ischium medially elevated, keel-like. Anterolateral margin of carapace granulate. Pterygostomian region posteriorly planar. Lateral angle of carapace rounded, overhanging thoracic sinus, margin beaded. Thoracic sinus deep, tomentose, anteriorly defined by overhanging margin of pterygostomian region; ventral margin bearing row of granules. Posterolateral margins of carapace rounded, granulate, granules smaller, further apart posteriorly. Epimeral margin closely beaded, invisible in dorsal view, continuous with posterior margin. Posterior margin sinuous in male, rounded in female. Chelipeds subequal, robust, longer in adult male than in female specimens. Cheliped merus trigonal, bearing perliform tubercles on anterior, posterior margins, upper surface bearing coalesced cluster of eight to ten granules proximally, followed by two diverging rows of granules, lower surface granulate, pitted proximally. Carpus, propodus inflated. Fingers as long as propodus. Pereiopods 2-5 slender, short. Pereiopodal propodi keeled; dactyli longer than propodi, lanceolate. Male abdominal sulcus deep, nearly reaching buccal cavity; its lateral margin bearing distinct ridge fitting into suture between abdominal segments. Male abdomen with first segment narrow, transverse; second segment minute; third to sixth segments fused, proximally inflated, furrowed lengthwise; sixth segment bearing denticle medially; telson triangular. Female abdomen with segments three to six fused, greatly enlarged, shield-like, telson triangular. First male pleopod elongate, shaft stout, sinuous, tightly coiled three times on its axis, ultimate coil swollen, setose; apical process cornute, variously shaped. Second male pleopod short, slender, apex scoop-like

Remarks.— *Coleusia* gen. nov. differs from *Leucosia* Weber, 1795 (emendato Galil, 2003a) and from *Soceulia* Galil, 2006, in having the first male pleopod with shaft coiled three times on its axis; and from *Euclosia* Galil, 2003 (Galil, 2003b) in having a plain rather than pursed anterior margin of the thoracic sinus.

Etymology.— *Coleusia* is an anagram of *Leucosia* Weber, 1795.

Key to species of *Coleusia* gen. nov.

1. Cheliped merus bearing conic granules; pterygostomian region with a beaded crest; fourth thoracic sternite with a granulate band anteriorly; telson lunulate ..... ***C. rangita*** spec. nov.
- Cheliped merus bearing perliform granules; pterygostomian region smooth; fourth thoracic sternite smooth; telson triangular 2
2. Large species, cl > 40 mm; palm lenticular, 1.1 times as long as wide; pereiopodal propodi expanded, leaflike; carapace with pale stripe extending from front to middorsum, two large reddish spots posteriorly ..... ***C. urania***
- Carapace length < 40 mm; palm elongate, 1.4 times as long as wide; pereiopodal propodi carinate; colour marking of carapace otherwise 3

3. Frontal margin tridentate; thoracic sinus with row of 8-9 elongate granules above cheliped basis, anterior margin straight; carapace with a pair of dark markings on gastric region, thin orange stripes posteriorly ..... ***C. magna***
- Frontal margin unidentate; thoracic sinus with no more than 5 granules above cheliped basis, anterior margin rounded; colour marking of carapace otherwise 4
4. Dorsal surface of carapace closely punctate; upper margin of palm rounded; thoracic sinus with row of 4-5 perliform granules; carapace with a pair of large orange ocelli on gastric region ..... ***C. biannulata***
- Dorsal surface of carapace punctate anteriorly; upper margin of palm cristate; thoracic sinus with row of 4-5 elongate, flat-topped granules; carapace with dark indistinct patches ..... ***C. signata***

Coleusia biannulata (Tyndale-Biscoe & George, 1962)
(figs 1A, 3A, 4A)

Leucosia longifrons var. *neocaledonica* Alcock, 1896: 218.
Leucosia biannulata Tyndale-Biscoe & George, 1962: 92, figs 4, 13a,b, 9; Serène, 1968: 48; Tirmizi & Kazmi, 1988: 94, fig. 27.
Leucosia longifrons; Chhapgar, 1968: 610, pl. 1b. (Not *Leucosia longifrons* de Haan, 1841.)

Material.— **Eritrea**: 1 ♂ (23.7 mm cl), RMNH D 24200, South Massawa Channel, 1958, coll. O.H. Oren; 1 ♂ (23.6 mm cl), RMNH D 24199, south Red Sea, 1958.— **Pakistan**: 1 ovigerous ♀ (21.8 mm cl), NHM 1999.125.— **India**: 1 ♂ (22.6 mm cl), NHM 1955.4.21.117, Palk Straits.

Description.— Dorsal surface of carapace closely punctate, punctae larger anteriorly. Frontal margin unidentate. Anterolateral margin of carapace sinuous, bearing closely spaced flattened granules, increasing in size posteriorly. Epibranchial margin with large, elliptical granules. Posterolateral margin evenly beaded, granules ending above first pereiopod. Epimeral margin gutter-like anteriorly, narrowing posteriorly, marginal granules decreasing in size posteriorly, meeting posterior margin at a rounded angle. Posterior margin sinuous, minutely granulate; deflexed posterior surface smooth. Thoracic sinus with row of four or five perliform granules above cheliped basis, decreasing in size posteriorly. Sinus anteriorly defined by obsoletely granulate, rounded, overhanging margin of pterygostomian region. Exognath of external maxillipeds indistinctly punctate anteriorly. Thoracic sternites punctate. Lateral margins of fused abdominal segment in male subparallel, narrowing evenly, segment bearing small denticle; telson lingulate. Cheliped merus half as long as carapace, its dorsal surface proximally with perliform granules, distally punctate; anterior surface with large perliform granules proximally, rounded granules distally; posterior margin with large perliform granules, diminishing in size posteriorly. Carpus with row of granules on inner margin. Propodus 1.4 times as long as wide, its upper margin rounded, punctate; lower surface of propodus granulate, bearing row of larger granules on inner margin. Pereiopodal meri bear single granulate line on upper margin, two beaded lines ventrally. Pereiopodal carpi rounded, smooth; propodi dorsally and ventrally carinate.

Male first pleopod with apical process distally spatulate, twisted, curved outwards at right angle to shaft.

Colour.— "On the gastric region is a pair of large ocelli with small white centers and

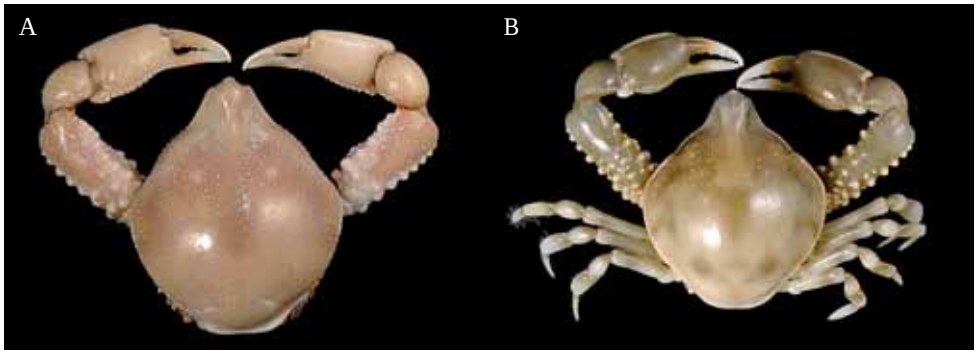

Fig. 1. A, *Coleusia biannulata* (Tyndale-Biscoe & George, 1962), 22.6 mm cl, NHM 1955.4.21.117; B, *Coleusia signata* (Paulson, 1875), 25.8 mm cl, TAU.

very broad red outer rings" (Alcock, 1896: 219). "Colour grayish. On the gastric region are two large ocelli with small white centers and very broad red outer rings. Around the posterior half of the circumference of the carapace are six reddish spots. The legs are banded red. The fingers of the claw have their basal halves red, and the distal halves white" (Chhapgar, 1968: 610).

Remarks.— Alcock (1896: 219) distinguished specimens collected from Palk Straits, Karachi and the Persian Gulf for their closely punctate carapace, sharply crenulate anterolateral margin, ischium of the external maxilliped keel-like in females, pereiopodal granulation and carination, and distinct colour pattern, and remarked that they constitute "a well-marked variety, and perhaps a distinct species", yet chose not to name it. Tyndale-Biscoe and George (1962: 92) chose one of Alcock's specimens, from Palk Straits, as the holotype of *Leucosia biannulata* (Indian Marine Survey, presently Zoological Survey of India, Calcutta, Reg. No. 147-63/10).

Distribution.— Red Sea (new record), Persian Gulf (Alcock, 1896), Arabian Sea: Karachi (Alcock, 1896), Bombay (Chhapgar, 1968), Palk Straits (Alcock, 1896).

Coleusia magna (Tyndale-Biscoe & George, 1962)
(fig. 2A, B, 3B)

Leucosia magna Tyndale-Biscoe & George, 1962: 86, pl. 1, fig. 4, 5, pl. 2, figs 4, 5, fig. 7.5; Serène, 1968: 48; Davie, 2002: 265; Chen & Ng, 2003: 67.

Material.—**Australia**: 1 ♂ (36.2 mm cl), QM W4181, Wreck Rock, 60 miles NNE Bundaberg, Queensland, 24.iii.1974, coll. R. Whalley; 1 ♀ (37.6 mm cl), QM W2709, south of Mackay Harbour, coll. E.H. Patten; 1 ♂ (33.8 mm cl), WAM C8384, Broome, 16.x.1962, coll. & id. R.W. George.

Description.— Dorsal surface of carapace shiny, sparsely punctate anteriorly. Frontal margin tridentate, median tooth larger than lateral teeth. Oblique anterolateral margin of carapace bearing closely spaced flattened granules, increasing in size posteriorly. Epibranchial margin with large, eliptical granules. Posterolateral margin evenly beaded, granules ending above last pereiopod. Epimeral margin gutter-like anteriorly, narrowing posteriorly, marginal granules decreasing in size posteriorly, meeting posterior margin at a rounded angle. Posterior margin sinuous, minutely granulate; de-

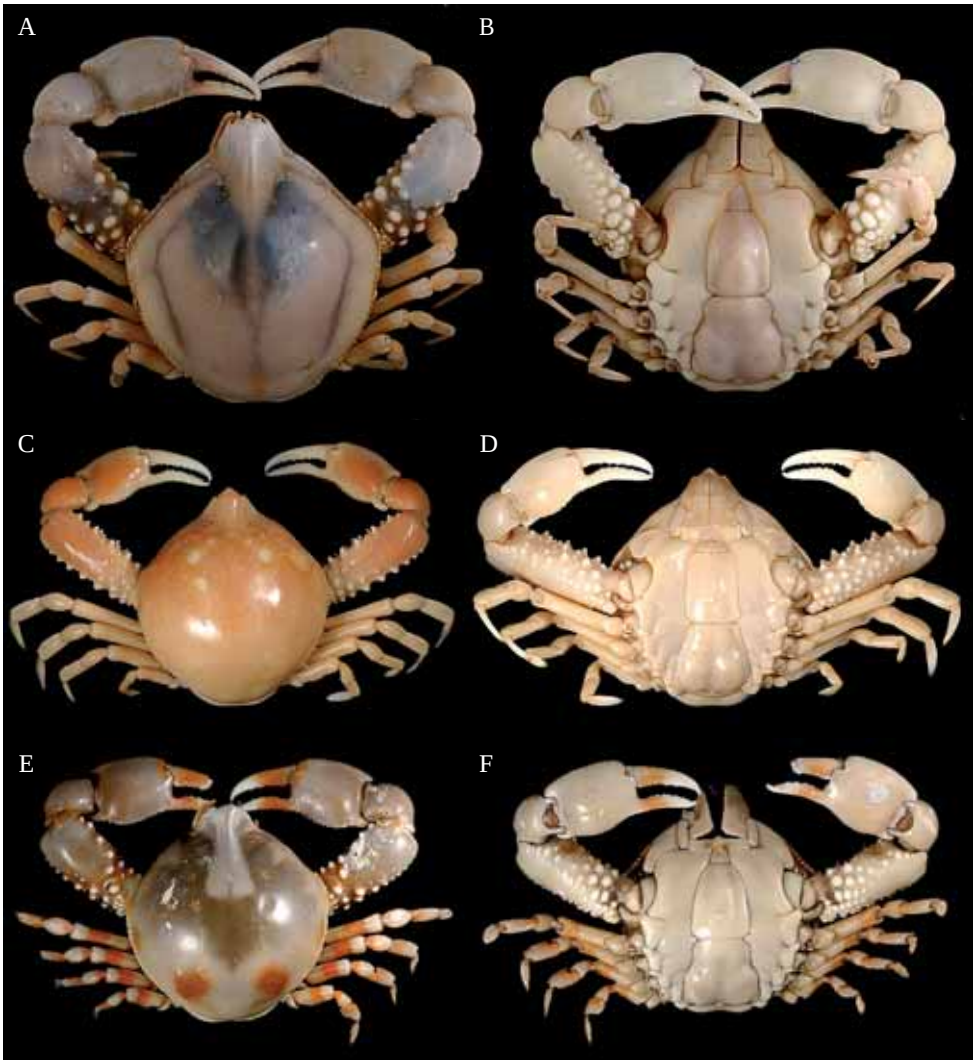

Fig. 2. A, B, *Coleusia magna* (Tyndale-Biscoe & George, 1962), 36.2 mm cl, QM W4181; C, D, *Coleusia rangita* spec. nov., holotype, 44.9 mm cl, MNHN 19734; E, F, *Coleusia urania* (Herbst, 1801), 40.6 mm cl, NTOU. A, C, E, dorsal view; B, D, E, ventral view.

flexed posterior surface smooth. Thoracic sinus with row of eight or nine granulate, oval granules above cheliped basis, decreasing in size posteriorly. Sinus anteriorly defined by granulate, straight, overhanging margin of pterygostomian region. Exognath of external maxillipeds indistinctly punctate anteriorly. Thoracic sternites smooth, sparsely punctate. Lateral margins of fused abdominal segment in male curved, narrowing evenly, segment bearing antrorse denticle; telson lingulate. Cheliped merus half as long as carapace, its dorsal surface proximally with perliform granules, distally smooth; anterior surface with large perliform granules proximally, rounded granules distally; posterior margin with large perliform granules, diminishing in size posteri-

orly. Carpus with row of granules on inner margin. Propodus 1.4 long as wide, its upper margin rounded, smooth; lower surface of propodus smooth, bearing granulate rows on inner and outer margins. Pereiopodal meri bearing few granules proximally on upper margin, single beaded line ventrally. Pereiopodal carpi rounded, smooth; Propodi dorsally and ventrally carinate. Male first pleopod with apical process distally spatulate, curved interiorly.

Colour.— "[P]ale grey, with a pair of dark brown blotches on gastric area, each blotch with two faint white spots. Posterior half of carapace with Y-shaped orange mark, arms of Y situated behind brown blotches. An orange line runs along each antero-lateral margin, a second orange line along posterior two thirds of each postero-lateral margin and a third line inside these, bent at an angle similar to epibranchial angle of carapace. Each walking leg banded bright orange around middle of merus, similar orange bands around joints of walking legs. Some granules on dorsal surface of merus of chelipeds margined with orange. Outside margin of exopodite of third maxilliped margined with orange. Sternum of thorax with some orange around telson of abdomen and anterior to insertion of each cheliped" (Tyndale-Biscoe & George, 1962: 86).

Type specimen.— holotype ♂ 35.4 mm, Western Australin-Hawaiian Expedition, 30 miles N of Dampier Archipelago, NW Australia, 57 m, 2.vi.1960, dredged, Western Australian Museum reg. no. 198-60.

Remarks.— *Coleusia magna* differs from its cogeners in having a row of eight or nine granules above cheliped basis, a spatulate apical process on the male first pleopod, and in its distinctive color pattern.

Distribution.— Australia: NW coast (Tyndale-Biscoe & George, 1962) Queensland (new record).

Coleusia rangita spec. nov.
(figs 2C, D, 3C, 4B)

? *Leucosia urania*; Bianconi 1867: 341; Hilgendorf, 1879: 811. (Not *Cancer urania* Herbst, 1801.)
Leucosia marmorea; Barnard, 1926: 120, 1950: 386, fig. 71i, j; Kensley, 1981: 39. (Not *Leucosia marmorea* Bell, 1855.)

Material.— **Madagascar**: holotype: 1 ♂ (44.9 mm cl), MNHN 19734, northwest coast, 15º20'S 46º11.5'E, 170-175 m depth, 19.i.1975, coll. A. Crosnier.— **Mozambique:** 1 ♀ (27.9 mm cl), SAM A6795.— **South Africa**: paratypes: 1 ♂ (39.9 mm cl), SAM A44493, Natal coast, between Durban and St. Lucia, 18-110 m depth, v.1948; 1 ♀ ovigerous (38.2 mm cl), SAM, Natal coast, 29º21.6'S 31º35.7'E, 57 m depth, 9.ix.1964, id. B. Kensley as *L. marmorea*.

Description.— Dorsal surface of carapace shiny, coarsely pitted anteriorly. Frontal margin planar, slightly mucronate. Anterolateral and epibranchial margins of carapace prominently beaded. Anterolateral margin anterior to epibranchial angle slightly indented, oblique beaded crest on pterygostomian region barely visible in dorsal view. Epimeral margin gutter-like anteriorly, narrowing posteriorly, marginal granules decreasing in size posteriorly, meeting posterior margin at an angle. Posterior margin straight, minutely granulate; deflexed posterior surface smooth. Thoracic sinus with row of five or six fungiform granules above cheliped basis, median granules largest. Sinus anteriorly defined by beaded, convex, overhanging margin of pterygos-

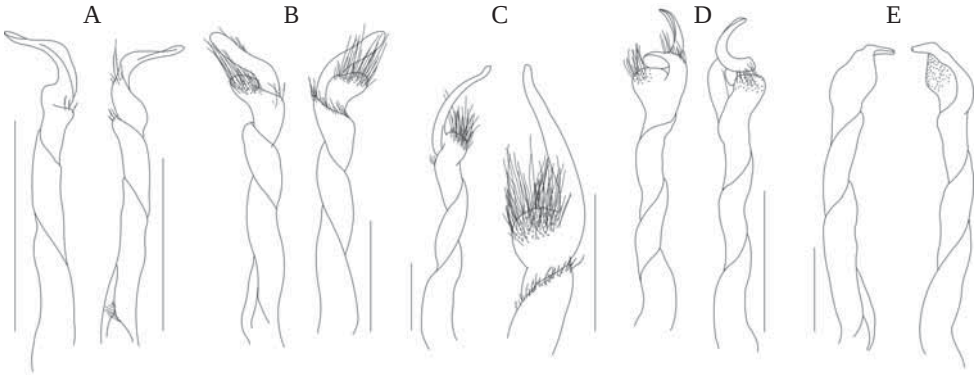

Fig. 3. First male pleopod. A, *Coleusia biannulata* (Tyndale-Biscoe & George, 1962), 22.6 mm cl, NHM 1955.4.21.117; B, *Coleusia magna* (Tyndale-Biscoe & George, 1962), 36.2 mm cl, QM W4181; C, *Coleusia rangita* spec. nov., holotype, 44.9 mm cl, MNHN 19734; D, *Coleusia signata* (Paulson, 1875), 25.8 mm cl, TAU; E, *Coleusia urania* (Herbst, 1801), 40.6 mm cl, NTOU. Scale 1 mm.

tomian region. Exognath of external maxillipeds indistinctly granulate anteriorly. Fourth thoracic sternite with oblique granulate band. Fused abdominal segment in male subrectangular, bearing prominent granule; telson lunulate, twice as wide as long.

Cheliped merus 0.6 times as long as carapace, its dorsal surface distally smooth; anterior surface lined with well-spaced prominent conic granules, posterior margin with large perliform granules, diminishing in size posteriorly. Carpus with row of granules on inner margin. Propodus 1.4 long as wide, its upper margin rounded, smooth; prominently granulate lower surface of propodus bearing row of conic granules on inner margin, granulation continuing on lower margin of pollex. Second pereiopodal merus bearing few granules proximally on upper margin, single beaded line on ventrally; two successive pereiopodal meri bearing two obsolescent beaded lines on dorsal margin, posterior line short, single beaded line ventrally. Dorsal beaded line on last pereiopodal merus distally obsolescent, ventral margin bearing granulate crest proximally. Pereiopodal carpi rounded, smooth; second and fifth propodi dorsally and ventrally carinate, third and fourth propodi only dorsally carinate. Male first pleopod with apical process greatly elongate, acuminate, curved ventrally.

Colour.— "Carapace and upper surface of arms, wrist and hand of chelipeds mauvy-russet, hinder part of carapace pale, with 2 pale brownish rings or oval spots, legs tinged with salmon." (Barnard, 1950: 819).

Remarks.— *Coleusia rangita* spec. nov. differs from its cogeners in having prominent conic granules anteriorly on cheliped merus, an oblique beaded crest on the pterygostomian region, a granulate strip on the 4th thoracic sternite, a lunulate telson, and a greatly elongated apical process on male first pleopod.

Barnard (1950, fig. 71j) clearly illustrated the oblique granulation on the pterygostomian region of his specimen.

Distribution.— Madagascar (new record), Moçambique (Bianconi, 1867), South Africa, Natal (Barnard, 1950).

Etymology.— After the 16th Century Malagasy Queen Rangita.

Coleusia signata (Paulson, 1875)
(figs 1B, 3D, 4C)

Leucosia urania; Hilgendorf, 1869: 110; De Man 1881: 256. (Not *Cancer urania* Herbst, 1801.)
Leucosia urania var. *signata* Paulson, 1875: 82, pl. 10, fig. 1.
Leucosia fuscomaculata Miers, 1877: 236, pl. 38, figs 1-3; Klunzinger, 1906: 69; Serène, 1968: 47.
Leucosia signata Nobili, 1905: 4; 1906: 166; Balss, 1915: 15; Laurie, 1915: 409; Ihle, 1918: 316; Fox, 1926: 53; 1927: 218; Calman, 1927: 212; Gurney, 1927a: 284, fig. 76; Monod, 1937: 2; 1938: 100; Holthuis, 1956: 318; Holthuis & Gottlieb, 1958: 81; Lewinsohn & Holthuis, 1964: 56; Steinitz, 1967: 167; Serène, 1968: 48; Por, 1971, pl. 2, fig. 3; 1978: 77, pl. 3 fig. 5; Ramadan & Dowidar, 1976: 130; Kocataş 1981: 162; Manning & Holthuis, 1981: 57; Shiber, 1981: 867; Grippa, 1982: 335; Golani et al., 1983: 196; Duriš, 1987: 643; Enzenross et al., 1990: 292; Enzenross & Enzenross, 1995: 2; Galil, 1992: 117; Stevčić & Galil, 1994: 71; d'Udekem d'Acoz, 1999: 209; Galil et al., 2002: 90.
Leuconia signata Gruvel, 1936: 46 [erroneous spelling].
Lemonia signata Gruvel, 1936: 87 [erroneous spelling].

Material.— **Turkey**: 1 ♀ (24.0 mm cl), RMNH D 39189, 10 km southwest of Silifke, xii.1987, coll. H. Menkhorst; 1 ♂ (22.7 mm cl), 2 ♀♀ (23.8, 23.3 mm cl), RMNH D 37542, Bay of Akkum, 15 km northeast of Silifke, xii.1986, coll. H. Menkhorst; 1 ♂ (25.8 mm cl), 1 ♀ (26.3 mm cl), TAU, Tekirova, 5-6 m depth, 25.x.2003, coll. B. Yokes.— **Lebanon**: 2 ♂♂ (22.8, 25.0 mm cl), USNM 311278, Tabouria, 11.viii.1962.— **Israel**: 1 ♀ (29.9mm cl), TAU, Elat, 1995, coll. J. Dafni.— **Egypt**: 2 ♂♂ (21.7, 19.7 mm cl), 3 ♀♀ (18.0-22.1 mm cl), NHM 1869.49, Gulf of Suez, coll. R. MacAndrew, id. E.J. Miers, syntypes of *L. fuscomaculata*; 3 ♂♂ (21.8-22.8 mm cl), 4 ♀♀ (21.8-23.5 mm cl), 6 juveniles, NHM 1926.1.26.14-23, Suez Canal, xii.1924; 1 ♂ (24.0 mm cl), 3 ♀♀ (22.6-25.9 mm cl), MNHN B19143, Great Bitter Lake, Suez Canal, iii.1932, coll. A. Gruvel; 1 ♂ (26.5 mm cl), RMNH D 27398, Great Bitter Lake, Suez Canal, 13.i.1969; 2 ♂♂ (25.4, 27.2 mm cl), RMNH D 43228, Great Bitter Lake, Suez Canal, viii.1950, coll. C. Beets; 1 ♂ (25.6 mm cl), 3 ♀♀ (22.9-25.6 mm cl), RMNH D 43226, Great Bitter Lake, Suez Canal, vii.1967; 1 ♀ (20.2 mm cl), RMNH D 19087, Ghardaqa, Gulf of Suez, 27.x.1962, coll. D. Magnus; 2 ♀♀ (26.1, 23.2 mm cl), RMNH D 38556, 5 km south of Safaga, intertidal, 3.v.1988, coll. J. Goud & W. van Dongen; 2 ♀♀ (21.4, 22.6 mm cl), RMNH D 43227, A Tor, Gulf of Suez, 20.ix.1967, coll. L. Fishelson.— **Sudan**: 1 ♂ (18.1 mm cl), 2 ♀♀ (18.3, 22.1 mm cl), 5 juveniles, NHM 1934.1.17.7-12, Sudanese Red Sea, coll. Miss Herdman; 4 ♂♂ (18.0-20.4 mm cl), NHM, 1904-1905, coll. C. Crossland.— **Ethiopia**: 1 juvenile, MZUF 2560, Assab (Aseb), 1889.— **Moçambique**: 1 ♂ (24.8 mm cl), RMNH D 49811, Inhaca I., 6 m depth, 14.i.1987, coll. J.H.C. Walenkamp; 1 ♂ (27.1 mm cl), SAM A39593, Morrumbene, Linga-Linga, 6-9 m depth, 20.i.1954, id. K.H. Barnard as *L. marmorea*; 1 ♂ (24.3 mm cl), SAM 3376, Lorenzo Marques, coll. H.A.T. Hunter.— **Madagascar**: 3 ♂♂ (20.1-22.5 mm cl), 1 ovigerous ♀ (22.0 mm cl), 1 ♀ (22.8 mm cl), 1 juvenile, MNHN B18551, northwest coast, Ankify point, vi.1958; 2 ♂♂ (21.7, 22.3 mm cl), 1 ovigerous ♀ (21.0 mm cl), MNHN B18553, northwest coast, Nosy Be; 2 ♂♂ (22.1, 16.9 mm cl), MNHN B18549, northwest coast, Nosy Be, 1958; 1 ♂ (23.5 mm cl), MNHN B19729, Nosy Be, 10 m, 25.i.1971; 1 ♂ (20.5 mm cl), 1 ovigerous ♀ (21.1 mm cl), 2 juveniles, MNHN B18533, Nosy Be; 1 ovigerous ♀ (24.4 mm cl), 1 ♀ (23.0 mm cl), MNHN B18552, Nosy Be, 6-8 m, 11.iv.1971; 1 ♀ (23.8 mm cl), MNHN, Tuléar, 8. v.1972; 1 ♂ (25.3 mm cl), MNHN B18538, Nosy Komba, 8 m, 26.x.1973; 1 ♂ (20.3 mm cl), MNHN B18540, Nosy Be, 0-6 m, ix-x.1960.— **Comoro Is**: 1 ♂, MNHN B17532, Ile Mayotte, coll. M. Cloué.

Description.— Dorsal surface of carapace shiny, densely punctate anteriorly. Frontal margin unidentate, rounded. Anterolateral margin evenly beaded, slightly indented anterior to epibranchial angle, margin of pterygostomian region barely visible in dorsal view. Epibranchial margin with large, contiguous granules. Posterolateral margin granulate, granulation stopping anteriorly to last pereiopod. Epimeral margin gutter-like anteriorly, narrowing posteriorly, marginal granules decreasing in size posteriorly. Posterior margin sinuous, minutely granulate; deflexed posterior surface smooth.

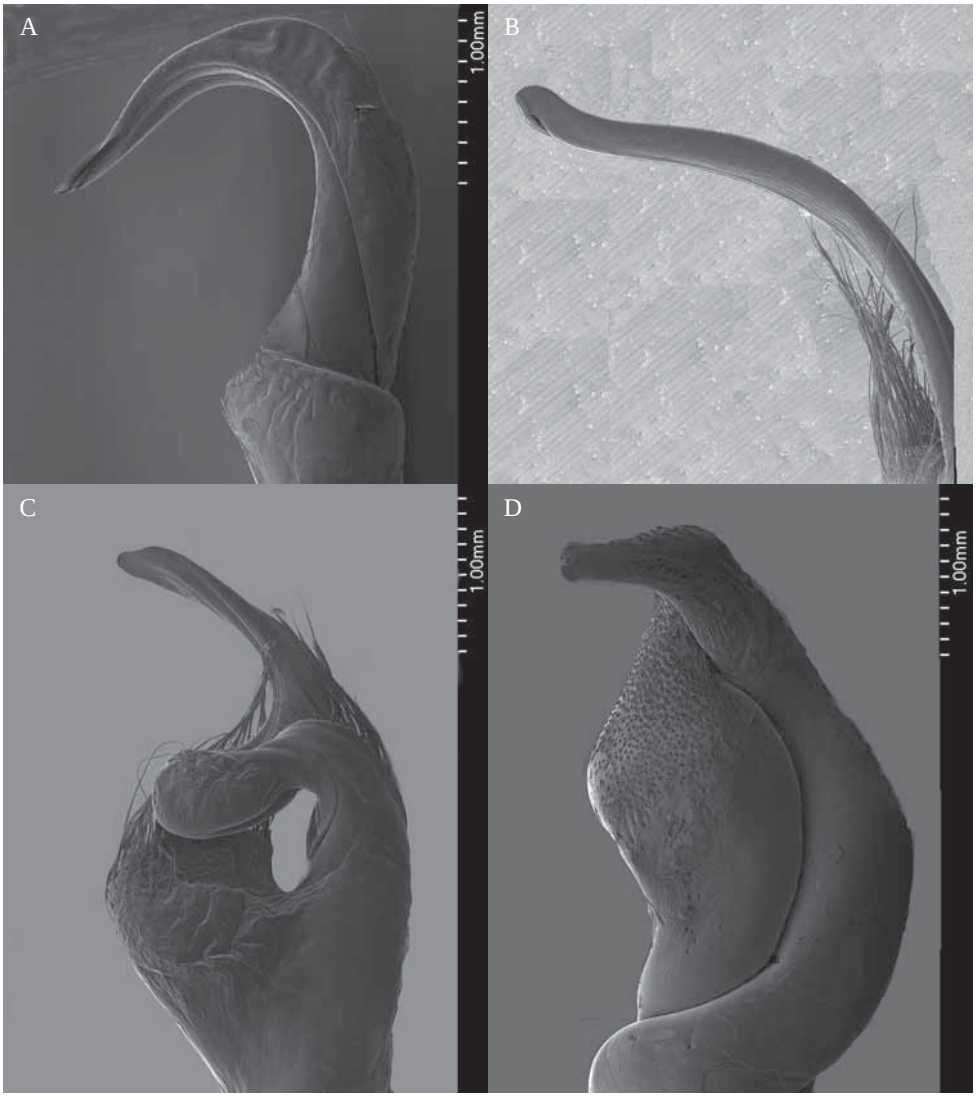

Fig. 4. Tip of first male pleopod. A, *Coleusia biannulata* (Tyndale-Biscoe & George, 1962), 22.6 mm cl, NHM 1955.4.21.117; B, *Coleusia rangita* spec. nov., holotype, 44.9 mm cl, MNHN 19734; C, *Coleusia signata* (Paulson, 1875), 25.8 mm cl, TAU; D, *Coleusia urania* (Herbst, 1801), 40.6 mm cl, NTOU.

Thoracic sinus with row of four or five elongate, flat-topped granules above cheliped basis, anterior granule largest. Sinus anteriorly defined by lingulate, overhanging margin of pterygostomian region.

Exognath of external maxillipeds punctate anteriorly. Thoracic sternites smooth, sparsely punctate. Lateral margins of fused abdominal segment in male curved, narrowing evenly, segment bearing triangular denticle; telson triangular. Cheliped merus little more than half as long as carapace, its dorsal surface proximally with perliform gran-

ules, distally smooth; anterior surface with large perliform granules proximally; posterior margin with large perliform granules, diminishing in size distally. Carpus with row of granules on inner margin. Propodus 1.4 long as wide, its upper margin distinctly carinate; lower surface of propodus minutely granulate, bearing granulate rows on inner and outer margins. Pereiopodal meri bearing few granules proximally on upper margin, single beaded line ventrally. Pereiopodal carpi rounded, smooth. Propodi dorsally and ventrally carinate. Male first pleopod with apical process proximally looped on itself.

Colour.— "light, yellowish-brown, with very indistinct spots and patches of dusky grey on the carapace" (Miers, 1877: 236). According to Nobili (1905), a blackish or brown stripe, irregular and undulate, dividing the latero-posterior margin, reaching to the hepatic region... shaped like the letter M. Two symmetrical brown spots on the posterior part of the carapace, on either side of the cardiac intestinal region.

Remarks.— *Coleusia signata* differs from its cogeners in having the dorsal surface of the carapace densely punctate anteriorly, the upper margin of the chela carinate, fungiform granules above the cheliped basis, and the apical process of the male first pleopod looped.

The specimens of *L. urania* from the Red Sea are described by De Man (1881: 256) as having "The upper margin of the palm of the hands …. cristate… There are two dark spots on the posterior surface of the carapace". I have no doubt the specimens are identical with *C. signata*.

Distribution.— Red Sea (Hilgendorf, 1869; Paulson, 1875; Miers, 1877), Tanzania (Nobili, 1905), Moçambique (new record), Madagascar (new record), Comoro Is. (new record); entered the Levantine Basin of the Mediterranean Sea through the Suez Canal (Fox, 1926; Holthuis, 1956).

Coleusia urania (Herbst, 1801)
(figs 2E, F, 3E, 4D)

Cancer urania Herbst, 1801: 17, pl. 53, fig. 3.
Leucosia urania; Lichtenstein, 1816: 140; Leach, 1817: 21; Desmarest, 1825: 167; White, 1847: 48 (part); Gibbes, 1850: 185; Bell, 1855a: 362; 1855b: 283, 1855c: 5; Alcock, 1896: 220; Serène, 1968: 47.
Leucosia anatum; K. Sakai, 1999: 19, pl. 7F. (Not *Cancer anatum* Herbst, 1783.)
Leucosia grandis Chen & Türkay, in Chen & Sun, 2002: 422, fig. 190, pl. 16.5-6.
Not *Leucosia urania*; Bianconi, 1867: 341; Hilgendorf, 1869: 110; de Man 1881: 256 [= *C. signata*]
Not *Leucosides urania*; Rathbun, 1910: 309, pl. 1, fig. 1; Suvatti, 1950: 143 [= *C. brunnea*].
Not *Leucosia urania*; Hilgendorf, 1879: 811 [= *C. rangita* spec. nov].

Material examined.— **Taiwan**: 1 ♂ (40.6 mm cl), NTOU, Keng-Fang Port, 28.v.1999; 1 ♀ (40.2 mm cl), NTOU, Keelung, 20 m depth, 23.ii.1973.— **East Indies**: 2 ♀♀ (35.2, 25.5 mm cl), NHM 86, Banks collection, preserved dry.

Description.— Dorsal surface of carapace shiny, finely punctate laterally. Front deeply concave laterally, frontal margin triangular. Anterolateral margin of carapace rounded, with traces of obsolescent granules; epibranchial margin prominently beaded, granules lozenge-shaped. Anterolateral margin anterior to epibranchial angle slightly indented. Epimeral margin gutter-like anteriorly, narrowing posteriorly, marginal granules decreasing in size posteriorly, meeting posterior margin at an angle. Posterior margin sinuous in male, slightly rounded in female, minutely granulate; deflexed posterior

surface smooth. Anterior margin of thoracic sinus level with base of coxopodite of third maxillipeds, with row of six oval granules above cheliped basis, decreasing in size posteriorly. Sinus anteriorly defined by beaded, convex, overhanging margin of pterygostomian region. Exognath of external maxillipeds smooth. Fourth thoracic sternite shiny, smooth. Lateral margins of fused abdominal segment in male curved, narrowing evenly, segment bearing prominent triangular denticle; telson triangular, as wide as long. Cheliped merus half as long as carapace, its dorsal surface distally smooth; anterior and posterior margins lined with perliform granules, diminishing in size posteriorly. Carpus with few granules on inner margin. Propodus lenticular, 1.1 long as wide, its upper margin rounded, smooth; lower surface minutely granulate, row of granules on inner margin. Meri of three anterior pereiopods bearing two beaded lines on dorsal margin, posterior line distally obsolescent, two beaded lines on ventral margin, anterior line proximally obsolescent. Last pereiopodal merus with single beaded line dorsally, prominently granulate crest proximally on ventral margin. Pereiopodal carpi rounded, smooth; propodi dorsally and ventrally carinate, expanded, leaf-shaped. Male first pleopod with apical process beak-like, curved interiorly.

Colour.— "Of a general pale brownish-grey; the front, and a large mark proceeding backwards from it are white; two large spots on the posterior part of the carapace, and two smaller ones on each lateral margin, the articulations of the fore legs, the basal portion of the fingers, and a ring on each joint of the ambulatory feet, are all of a more or less deep orange colour"(Bell, 1855b: 283).

Remarks.— *Coleusia urania* differs from its cogeners in having prominently granulate pereiopodal meri, expanded, leaf-like pereiopodal propodi, and in the form of the apical process of the male first pleopod, and in its distinctive color pattern.

Chen & Türkay, cited in Chen & Sun (2002: 422) established a new species, *Leucosia grandis*, and assigned one of the oldest, most distinct leucosid species – *Cancer urania* Herbst, 1801 – as its junior synonym. The reason for this is unclear, since the manuscript, though cited, had not been published. The specimens described and illustrated by Chen & Sun (2002: 422, fig. 190, pl. 16.5-6) agree with Herbst's original description and with our specimens.

Distribution.— Andamans (Alcock, 1896), China: Guandong and Fujian Provinces (Chen & Sun, 2002), Singapore (Chen & Sun, 2002), Thailand (Chen & Sun, 2002), Taiwan (new record).

Acknowledgements

I am exceedingly obliged to T.-Y. Chan, P. Clark, A. Crosnier, P. Davie, C.H.J.M. Fransen, D. Guinot, M. Hewitt, L.B. Holthuis, G. Innocenti, R. Lemaitre, M. van der Merwe, for entrusting me with valuable material from their collections. I am grateful to Prof. Holthuis for his suggestions and amendments on an earlier version of this manuscript. R.T. Schuh, of the American Museum of Natural History, New York, and A. Crosnier, Museum national d'Histoire naturelle, Paris, hosted me with the greatest kindness. Special thanks are due to the librarians of the AMNH. J.L. Mey, American Museum of Natural History, New York, took the SEM photographs.

Visits to the MNHN were supported by the European Commission's TMR programme to Paris MNHN Systematics collections (PARSYST).

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Received: 6.v.2004
Accepted: 10.vi.2004
Edited: C.H.J.M. Fransen