



A Taxonomic Review of the Buccal-attaching Fish Parasite genus *Lobothorax* Bleeker, 1857 (Crustacea: Isopoda: Cymothoidae) with Description of a New Species from Southwestern India

Panakkool Thamban Aneesh^{1,*} , Niel L. Bruce^{2,3}, Appukkuttannair Biju Kumar¹ , M. Raj Bincy⁴, and T. Mohanan Sreenath⁴

¹Department of Aquatic Biology & Fisheries, University of Kerala, Karyavattom, Thiruvananthapuram-695 581, Kerala, India.

*Correspondence: E-mail: anee3716@gmail.com (Aneesh)

E-mail: bijupuzhayoram@gmail.com (Kumar)

²Biodiversity & Geosciences Program, Queensland Museum, PO Box: 3300, South Brisbane BC, Queensland 4101, Australia.

E-mail: niel.bruce@qm.qld.gov.au (Bruce)

³Unit for Environmental Sciences and Management and Water Research Group (Ecology), North West University, Potchefstroom 2520, South Africa

⁴School of Ocean Science & Technology, Kerala University of Fisheries & Ocean Studies. E-mail: bincymraj.21@gmail.com (Bincy); sreenath@kufos.ac.in (Sreenath)

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The genus *Lobothorax* Bleeker, 1857 is revised with the description of a new species collected from the gempylidae fish *Promethichthys prometheus* (Cuvier, 1832) from the southwestern coast of India. A revised generic diagnosis is provided based on the redescription of the type species. *Lobothorax aurita* (Schioedte and Meinert, 1883) is here synonymised with *Lobothorax typus* Bleeker, 1857 based on the original description. *Lobothorax nicosmiti* Aneesh, Bruce and Kumar sp. nov. is described from the female stage and it is characterized by: pereonite 1 anterolateral expansion not extending to the anterior margin of cephalon; coarsely pitted pereonites dorsal surfaces; pereonites without dorsal median longitudinal ridges; anteriorly truncate cephalon; pleotelson about 0.6 times as long as wide, posterior margin weakly emarginate, broadly sub-truncate, lateral margins convex; maxilliped palp article 3 with three RS; pereopods basis much wider with prominent carina. A key to the species of *Lobothorax* Bleeker, 1857 is presented.

Key words: Fish parasite, Cymothoidae, *Lobothorax*, New species, Indian Ocean.

BACKGROUND

Studies on parasitic cymothoids in India have not progressed significantly since the taxonomic contributions of Barnard (1936) and Pillai (1954 1963 1964). Since the works of Pillai (1964), only eight new species and the new genus *Brucethoa* Aneesh,

Hadfield, Smit and Kumar, 2020 have been described from India, (Aneesh et al. 2019 2020a b c). Along with taxonomy, there have been few attempts made to study other aspects of cymothoid biology, such as distribution, moult, life cycle and hermaphroditic reproduction (Aneesh et al. 2015 2018; Helna et al 2019; Aneesh and Kappalli 2020).

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Lobothorax Bleeker, 1857, is a poorly known fish parasitic cymothoid genus that attaches to the buccal cavity of the host fish, like several other cymothoid genera such as *Ceratothoa* Dana, 1852, *Cymothoa* Fabricius, 1793 and *Glossobius* Schioedte and Meinert, 1883. *Lobothorax* Bleeker, 1857 was erected as a monotypic genus for *Lobothorax typus* Bleeker, 1857. Schioedte and Meinert (1883) described the second species, *Lobothorax aurita* (Schioedte and Meinert, 1883), proposing *Saophra* Schioedte and Meinert, 1883 as a replacement name for *Lobothorax*, but the name *Saophra* was not subsequently accepted (Yu and Bruce 2006). The most recent addition to this genus was during the early 20th century by Richardson (1910), who described the third species, *Lobothorax laevis* Richardson, 1910. *Lobothorax* currently includes only three species.

Lobothorax has been reported from Jakarta, Java (as Batavia), Indonesia (Bleeker 1857; Schioedte and Meinert 1883); the Bay of Bengal (Barnard 1936); Ubay, Philippines (Schioedte and Meinert 1883; Richardson 1910; Trilles 2008); the South China Sea (Yu and Bruce 2006); and Miri, East Malaysia (Anandkumar et al. 2015). *Lobothorax typus* is the only species previously recorded from India, at Parangipettai, southeastern India (Rameshkumar et al. 2013).

The generic characters of *Lobothorax* have not been well understood or delimited. Yu and Bruce (2006) gave a generic diagnosis differentiating *Lobothorax* from the other morphologically similar buccal cymothoid genera such as *Cymothoa*, *Ceratothoa* and *Glossobius*. In recent decades cymothoid generic diagnoses have become increasingly precise and restrictive (e.g., Hadfield et al. 2013 2014). Recently, Martin et al. (2016) gave a world key to the marine buccal-attaching genera of the Cymothoidea. The description of the new species given here together with the descriptive data given by Yu and Bruce (2009) allows for a detailed generic description and diagnosis comparable to diagnoses for related genera.

MATERIALS AND METHODS

Specimens were collected from Munambam, Kerala, southwestern, India (10.1667°N, 76.1833°E). Specimens were removed from the buccal cavity of the host fish and preserved in 90% ethanol. The collecting, preserving, dissecting, mounting and drawing and digital inking were performed using the techniques described in Aneesh et al. (2019). The specimens were microphotographed using a multi-focusing dissection microscope Leica-M205A and image capturing software (Leica Application Suit). Sources for the

fish taxonomy and host nomenclature were Fish Base (Froese and Pauly 2020) and Catalogue of Fishes (Fricke et al. 2020). The types and voucher specimens are deposited in the Western Ghat Field Research Centre of Zoological Survey of India, Kozhikode (ZSI/WGRC). The authority for the new species *Lobothorax nicosmiti* is here specifically identified as Aneesh, Bruce and Kumar.

RESULTS

TAXONOMY

Suborder Cymothoidea Wägele, 1989 Superfamily Cymothoidea Leach, 1814 Family Cymothoidea Leach, 1818

Genus *Lobothorax* Bleeker, 1857

Lobothorax Bleeker, 1857: 38; Yu and Bruce 2006: 642–643.

Saophra Schioedte and Meinert, 1883: 282; Trilles 1994: 114 [type species not designated].

Type species: Lobothorax typus Bleeker, 1857; by monotypy.

Species included: Lobothorax typus, Lobothorax laevis Richardson, 1910; *Lobothorax nicosmiti* sp. nov.

Diagnosis: Female: Body elongate, about 3 times as long as wide, bilaterally symmetrical, margins subparallel, widest at pereonite 5; dorsally strongly vaulted. Cephalon immersed in pereonite 1; rostrum anteriorly produced, dorsoventrally flattened. Eyes prominent. Pereonite 1 anterolateral margin expanded, forming well-developed lobes. Pereonites 5–7 markedly shorter than pereonite 4. Coxae not overlapping adjacent pereonites. Pleonites 1 and 2 narrower than pleonites 3–5. Pleotelson as wide as pleon. Antenna and antennula subequal in size, slender, bases narrowly separated; antennula 8-articled, antenna 9-articled; antennula articles 1–3 similar in size and longer than other articles, terminal articles without setae. Mandible palp article 3 with RS. Maxilla with distinct medial and lateral lobes. Maxilliped without oostegite lobe. Pereopods 5–7 basis with raised carina. Brood pouch arising from coxae 1–4 and 6; posterior pocket absent. All pleopods lamellar, exopods with proximolateral lamella; pleopods 1–3 rami simple, 4–5 endopods with weak fleshy ridges or pockets. Pleopods peduncles all with developed lateral lobes. Uropod rami subequal in length, not extending beyond pleotelson posterior margin.

Remarks: Yu and Bruce (2006) provided a revised diagnosis to the genus with the redescription of the type species based on the specimens collected from the

South China Sea. *Lobothorax* is characterised by the strongly developed antero-lateral lobes on pereonite 1; the flattened rostrum; pereonites 5–7 being very short in comparison to pereonite 1–4; the antennula and antenna are both slender, with articles 1–3 longer than wide, and bases narrowly separated, not in contact; the eyes are prominent.

Other similar buccal-attaching genera differ from *Lobothorax* in the following characteristics: *Glossobius* Schioedte and Meinert, 1883 can be separated from *Lobothorax* by: the cephalon not being immersed in pereonite 1; pereonite 1 with anterolateral margins weakly produced or projecting laterally; cephalon anterolateral margins concave; pleopod exopod without proximolateral lamella (Martin et al. 2015). *Ceratothoa* Dana, 1852 differs from *Lobothorax* in: contiguous antennal bases and antennula article broad, expanded; pereonite 1 longest; body widest at pereonite 4 or 5; pleopod exopods without proximolateral lamella; only pereonite 7 shorter than pereonite 6; maxilla with many (4–12) RS on both lobes; maxilliped with oostegite lobes (Hadfield et al. 2014). *Cymothoa* Fabricius, 1793 differs from *Lobothorax* by: body strongly vaulted; cephalon rostrum wide, ventrally folded; pleopods with fleshy and thick folds; maxilliped with oostegite lobes (Hadfield et al. 2013; Martin et al. 2013). *Cinusa* Schioedte and Meinert, 1884 differs from *Lobothorax* in the following characters: body asymmetrical, ovoid in shape; pereonite 1 short, anterolateral margins rounded, anteriorly not projected; pereonite 3 to 4 widest; pereonite 1 and antennae bases close-set, almost contiguous; maxilliped with oostegite lobes (Hadfield et al. 2010).

Smenispa Özdikem, 2009 is a buccal-attaching genus that is superficially similar to the other buccal-attaching genera in body shape. As Bruce (1990, as *Smenispa*) and Martin et al. (2014) showed the morphology of the brood pouch and pleopods indicate that the genus is more closely aligned with genera such as *Anilocra* Leach, 1818 and *Renocila* Miers, 1800. *Smenispa* is distinguished from *Lobothorax* by the following characters: body strongly vaulted; cephalon embedded in pereonite 1, posterior margin weakly trilobed; antennula bases set wide apart; pleon lateral margins subparallel; pereopods with carina on basis; and pleopods 3–5 have large thickened folds (Martin et al. 2014).

Very little is known about *Lobothorax* with very few publications and a detailed description is available only for the type species (Yu and Bruce 2006). Further the host data is available only for *L. typus* recorded from two host fishes of the family Trichiuridae, *Lepturacanthus savala* (Cuvier, 1829) and *Trichiurus lepturus* Linnaeus, 1758; the present new species *L.*

nicosmiti Aneesh, Bruce and Kumar sp. nov. is known only from the host *Promethichthys prometheus* (Cuvier, 1832) (Gempylidae). The host of *L. laevis* Richardson, 1910 is not known and that species has not been reported since Barnard (1936).

***Lobothorax typus* Bleeker, 1857**

Lobothorax typus Bleeker, 1857: 39–40, fig. 16; Stebbing 1893: 353; Nierstrasz 1931: 130; Yu and Bruce 2006: 641–648; Rameshkumar et al. 2013: 43–44, fig. 1e; Anandkumar et al. 2015: 208, fig. 2b.

Saophra Typus–Schioedte and Meinert 1883: 283, pl. 11, figs. 1, 2.

Saophra typus–Nierstrasz 1915: 87; Trilles 1994: 114.

Saophra aurita Schioedte and Meinert, 1883: 283, pl. 11, figs. 3, 4 [New synonymy].

Lobothorax aurita - Stebbing 1893: 353; Nierstrasz 1915: 87; 1931: 130.

Type locality: “la mer de Batavia.” (Bleeker 1957); *i.e.*, Jakarta Bay, western Java Sea, Indonesia.

Remarks: *Lobothorax typus* may be identified by the following combinations of characters: anterolateral margins of pereonite 1 projecting forward beyond the anterior margin of the cephalon; pereonites 1–7 each with a dorsal median longitudinal ridge; dorsal surface smooth; pereonites 5–7 each abruptly shorter than pereonite 4; and maxilliped palp article 3 with 4 robust setae (Table 1).

Lobothorax aurita was described from Philippines by Schioedte and Meinert (1883), their description and figures (Schioedte and Meinert 1883; plate 11, figs. 1–4)) agreeing well with those of Bleeker’s (1857) original description of *L. typus* from Batavia (Jakarta). Specifically, the key characters, such as antero-lateral margins of pereonite 1 projecting forward beyond the anterior margin of the cephalon, pereonites 1–7 each with dorsal median longitudinal ridges, and pereonites 5–7 each abruptly shorter than pereonite 4. Hence *Lobothorax aurita* is here placed into junior synonymy with *L. typus*.

L. typus is comparatively well-known species within the genus, recorded from Batavia (Jakarta) and the Philippines (Bleeker 1857; Schioedte and Meinert 1883). The species was redescribed by Yu and Bruce (2006) based on the materials collected from the South China Sea and was later recorded from Parangipettai, India and East Malaysia (Rameshkumar et al. 2013; Anandkumar et al. 2015).

Distribution: Jakarta, Java, Indonesia (Bleeker 1857; Schioedte and Meinert 1883), Ubay, Philippines (Schioedte and Meinert 1883; Trilles 2008), South China Sea (Yu and Bruce 2006), Parangipettai, India (Rameshkumar et al. 2013), East Malaysia (Anandkumar et al. 2015).

Hosts: Lepturacanthus savala (Cuvier, 1829), *Trichiurus lepturus* Linnaeus, 1758 (Yu and Bruce 2006; Rameshkumar et al. 2013; Anandkumar et al. 2015).

***Lobothorax laevis* Richardson, 1910**

Lobothorax laevis Richardson, 1910: 19, fig. 18; Barnard 1936: 168, fig. 8.

Type locality: Leyte Island, Villaba, 16.1 miles NE of Capitancillo Island Light, The Philippines.

Remarks: *Lobothorax laevis* has not been reported since the original description and subsequent records from the Mergui Archipelago, Bay of Bengal by Barnard (1936). The identification of this species is still based on its original description. *Lobothorax laevis* is identified by the following combinations of characters: cephalon subequal to pereonite 1 anterolateral expansion; pereonites 1–7 each without median longitudinal ridges; and smooth dorsal surfaces (Table 1). The holotype is held at the Department of Invertebrate Zoology, Smithsonian Institutions, USA; catalogue number USNM 40935.

Distribution: The Philippines (Richardson 1910); Bay of Bengal, Morrison Bay. Mergui Archipelago (Barnard 1936).

Host: Unknown.

***Lobothorax nicosmiti* Aneesh, Bruce and Kumar sp. nov.**

(Figs. 1–6)

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Material examined: Holotype. 1 ♀ (ovig., 18.0 mm long, 6.0 mm wide), from *Promethichthys prometheus* coll. Bincy MR and Sreenath TM (Reg. No. ZSI/WGRC/IR.INV./14609). *Paratype.* Same data as holotype with the following measurements and registration details: 1 ♀ (non-ovig., 24.0 mm long, 7.2 mm wide) (Reg. No. ZSI/WGRC/IR.INV./14610).

Etymology: This species is named in honour of Dr. Nico J. Smit, Professor and Director, Unit for Environmental Sciences and Management, Water Research Group (Ecology), North West University, South Africa, recognising his contribution to knowledge of parasitology and marine isopoda of southern Africa in his role as aquatic biologist, parasitologist, taxonomist and ecologist in South Africa.

Description: Description of holotype female (Figs. 1–6): *Body* weakly hunched, subquadrate in outline, 3.0–3.3 times as long as greatest width, dorsal surfaces coarsely pitted, widest at pereonite 5, most narrow at pereonite 1; lateral margins subparallel. *Cephalon* 1.1 times longer than wide, *frontal margin* produced to form broadly rounded rostrum. *Eyes* round with distinct margins, one eye 0.4 times width of cephalon. *Pereonite* 1 anterolateral expansion not reached to the anterior margin of cephalon. Pereonites 1, 3 and 4 subequal, longest, pereonite 7 shortest; pereonite 5, 6 subequal, conspicuously shorter than 4. *Pereonites* posterolateral angles not produced. *Coxae* all shorter than pereonites. *Pleon* wide, 0.8 as wide as pereon; pleonites progressively increasing in width towards posterior, pleonites 1–4 sub-equal in length, 5 slightly longer than pleonite 1. *Pleotelson* 0.6 times as long as wide, posterior margin weakly emarginate, broadly sub-

Table 1. Inter-specific characters between the species of parasitic isopod *Lobothorax*

Characters	Species		
	<i>L. typus</i> Bleeker, 1857	<i>L. laevis</i> Richardson, 1910	<i>L. nicosmiti</i> Aneesh, Bruce and Kumar sp. nov.
Pereonite 1 antero-lateral expansion	Projecting forward well beyond the anterior margin of cephalon	Subequal to cephalon length	Not reaching to the anterior margin of cephalon
Uropod rami	Endopod longer than exopod, apex acute	Endopod shorter than exopod, apex rounded or narrowly rounded	Endopod longer than exopod, apex narrowly rounded
Pereonites dorsal surface	Smooth	Smooth	Surfaces coarsely pitted
Pereonite dorsal median longitudinal ridges	Present	Absent	Absent
Cephalon	Anteriorly acute	subtruncate	Cephalon anteriorly truncate
Pleotelson	About 0.8 times as long as wide, sub-rectangular, posterior margin tapering to caudomedial point	About 0.58 times as long as wide, sub-rectangular, posterior margin tapering to caudomedial point	About 0.62 times as long as wide, posterior margin weakly emarginate, broadly sub-truncate, lateral margins convex
Host fish	<i>Lepturacanthus savala</i> (Cuvier) <i>Trichiurus lepturus</i> Linnaeus	Unknown	<i>Promethichthys prometheus</i> (Cuvier)

truncate, lateral margins convex.

Antennula length slightly shorter than antenna, consisting of 8 articles; peduncle articles all articulated, 1–3 more robust than articles 4–8; articles gradually decreasing the width from 1–8; articles 2–3 subequal in length, article 1, 0.6 times as long as wide, article 2 about as long as wide, article 3, 1.5 times as long as wide, article 3–8, longer than wide, article 2–3 subequal in length; extending to middle of anterior lobe of pereonite 1. *Antenna* consisting of 9 articles; article 3–4 wider and longer than others. *Mandibular molar process* absent; palp article 3 with 2 simple setae. *Maxillula* simple with 4 terminal RS. *Maxilla* mesial lobe and lateral lobe each with 2 RS. *Maxilliped palp* consisting

of 2 articles, without oostegite lobe; article 2 without setae or spine, article 3 with 3 recurved short RS.

Pereopod 1 basis 1.2 times as long as greatest width; ischium 0.8 times as long as basis; merus 0.4 times as long as wide; propodus 0.5 times as long as basis, 1.1 times as long as wide; dactylus moderately robust, 1.5 times as long as propodus, 2.7 times as long as proximal width. *Pereopod 2* basis 1.35 times as long as greatest width, ischium 0.8 times as long as basis, 1.8 times as long as wide; propodus 1.4 times as long as wide; dactylus 1.4 times as long as propodus. *Pereopod 4* basis 1.8 times as long as greatest width, ischium 0.5 times as long as basis, 1.8 times as long as wide; propodus 0.4 times as long as basis, 1.5 times as



Fig. 1. *Lobothorax nicosmiti* Aneesh, Bruce and Kumar sp. nov. A, B, holotype, female (Reg. No. ZSI/WGRC/IR.INV./14609) (ovigerous) dorsal and lateral view. C, paratype, female (Reg. No. ZSI/WGRC/IR.INV./14610) (non-ovigerous) dorsal view.

long as wide; dactylus 1.8 times as long as propodus. *Pereopod 6* basis 1.4 times as long as greatest width, ischium 0.7 times as long as basis; propodus 1.5 times as long as wide, 0.4 times as long as basis; dactylus 2.0 times as long as propodus. *Pereopod 7* basis 1.3 times as long as greatest width; ischium 0.7 times as long as

basis; merus 0.5 as long as wide, 0.3 times as long as ischium; carpus 0.9 times as long as wide, 0.38 times as long as ischium; propodus 1.8 times as long as wide, 0.5 times as long as ischium; dactylus 1.6 times as long as propodus, 4.3 times as long as basal width.

Pleopods 1–3 rami simple, 4–5 endopods with

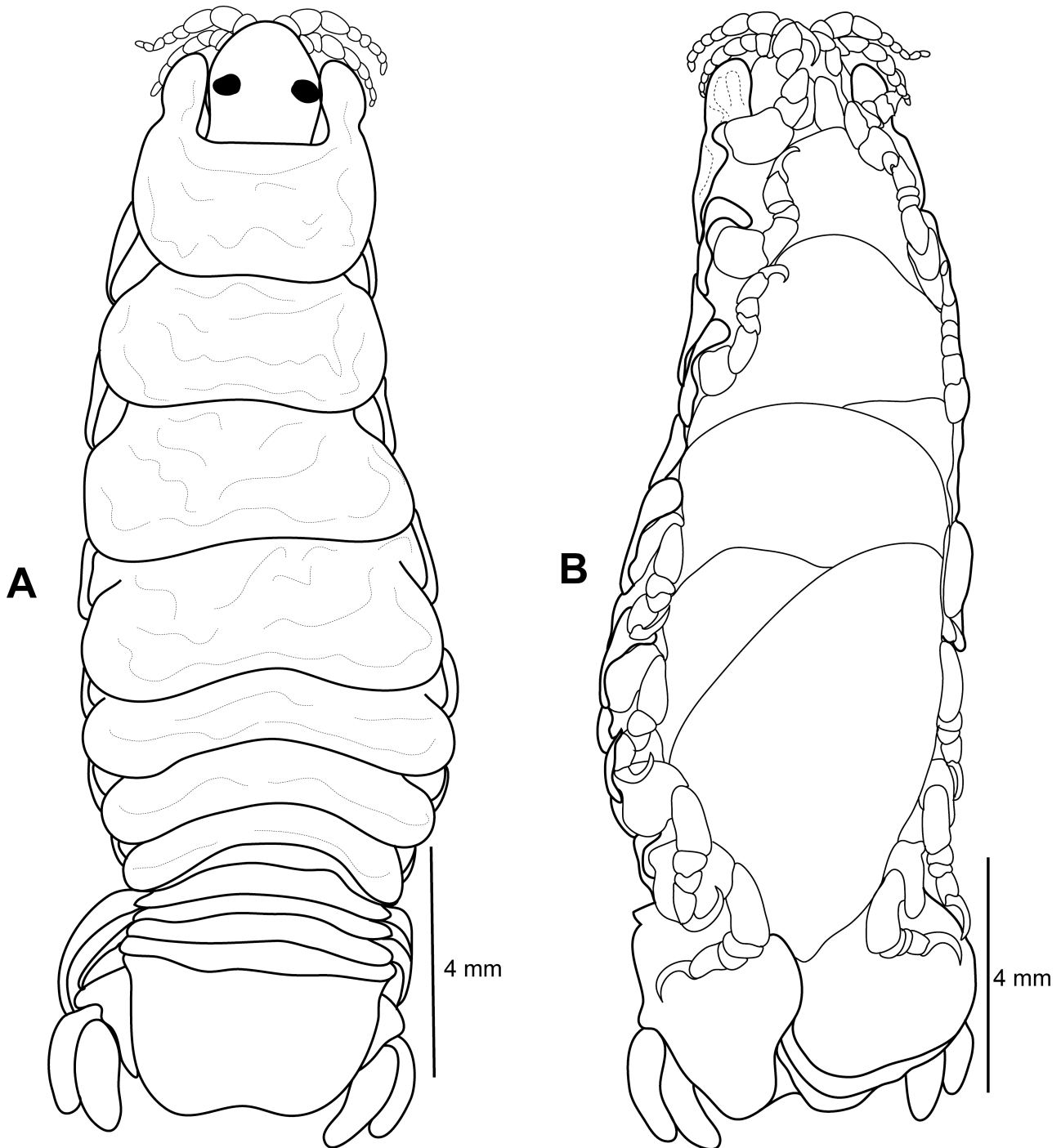


Fig. 2. *Lobothorax nicosmiti* Aneesh, Bruce and Kumar sp. nov., holotype female (Reg. No. ZSI/WGRC/IR.INV./14609) (ovigerous). A, dorsal view. B, ventral view.

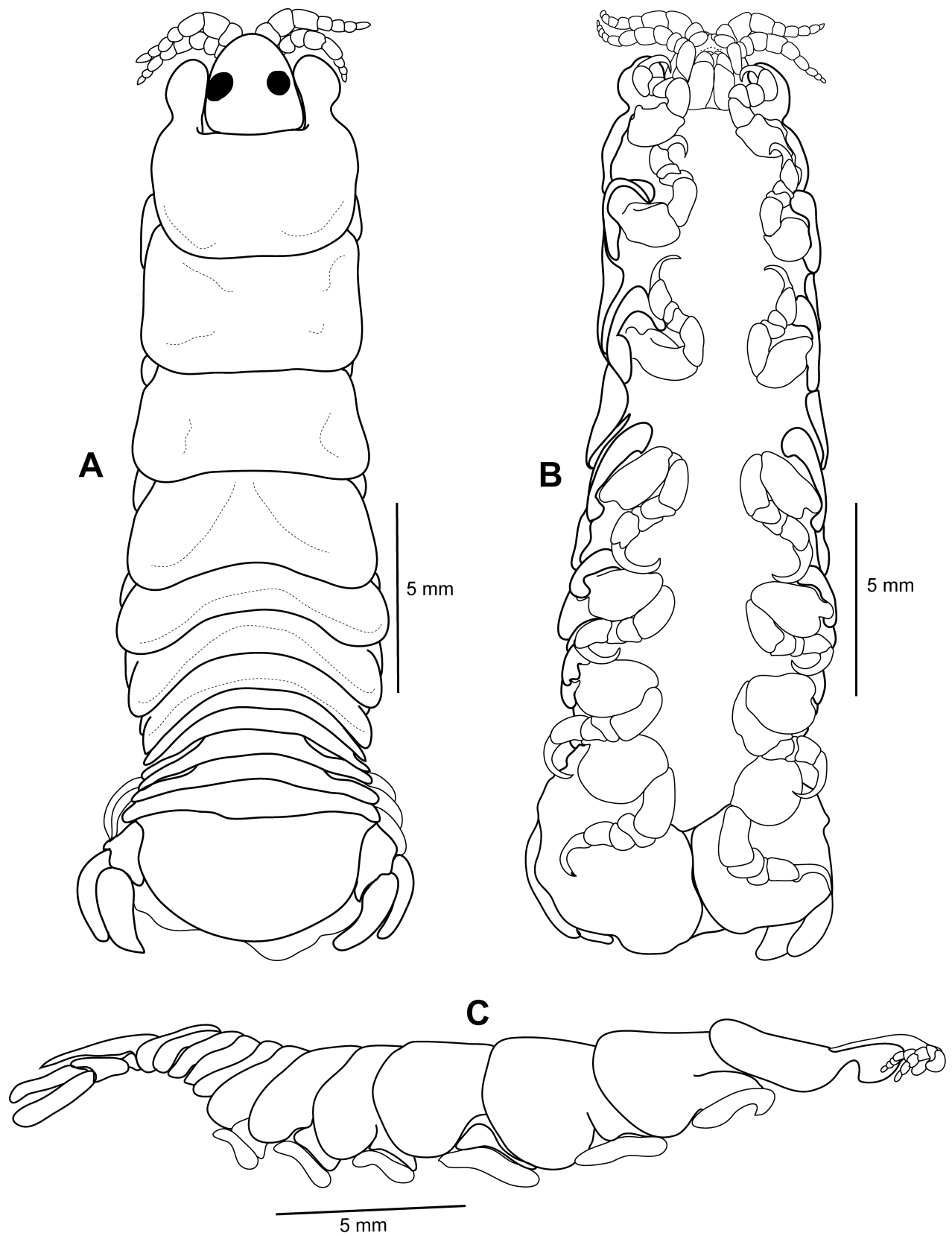


Fig. 3. *Lobothorax nicosmiti* Aneesh, Bruce and Kumar sp. nov., non-ovigerous female paratype (Reg. No. ZSI/WGRC/IR.INV./14610). A, dorsal view. B, ventral view. C, lateral view.

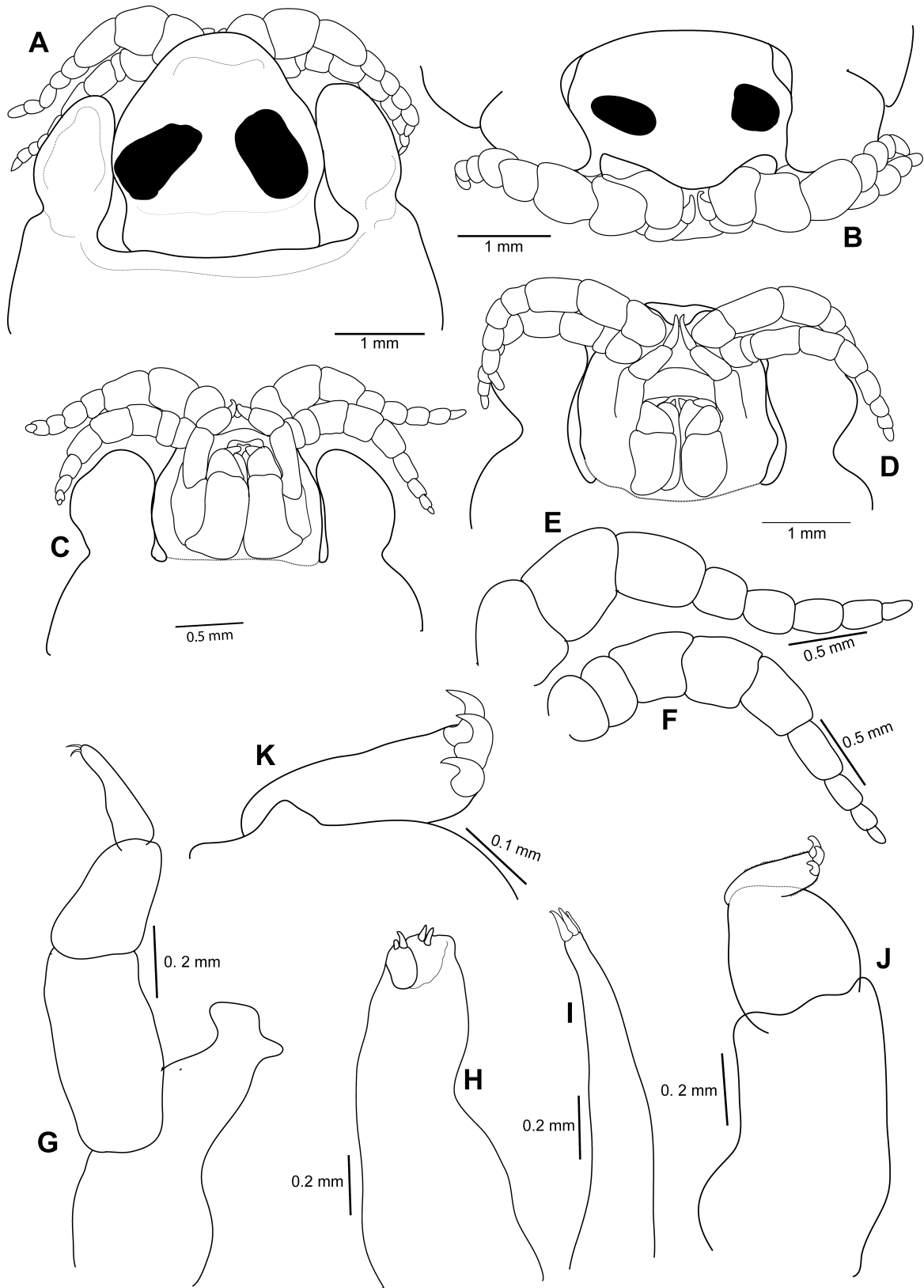


Fig. 4. *Lobothorax nicosmiti* Aneesh, Bruce and Kumar sp. nov., female. A, cephalon dorsal view. B, cephalon frontal view. C, cephalon ovigerous female ventral view (Reg. No. ZSI/WGRC/IR.INV./14609). D, cephalon non-ovigerous female ventral view (Reg. No. ZSI/WGRC/IR.INV./14610). E, antennula. F, antennae. G, mandible. H, maxilla. I, maxillule. J, maxilliped of ovigerous female. K, maxilliped article 3.

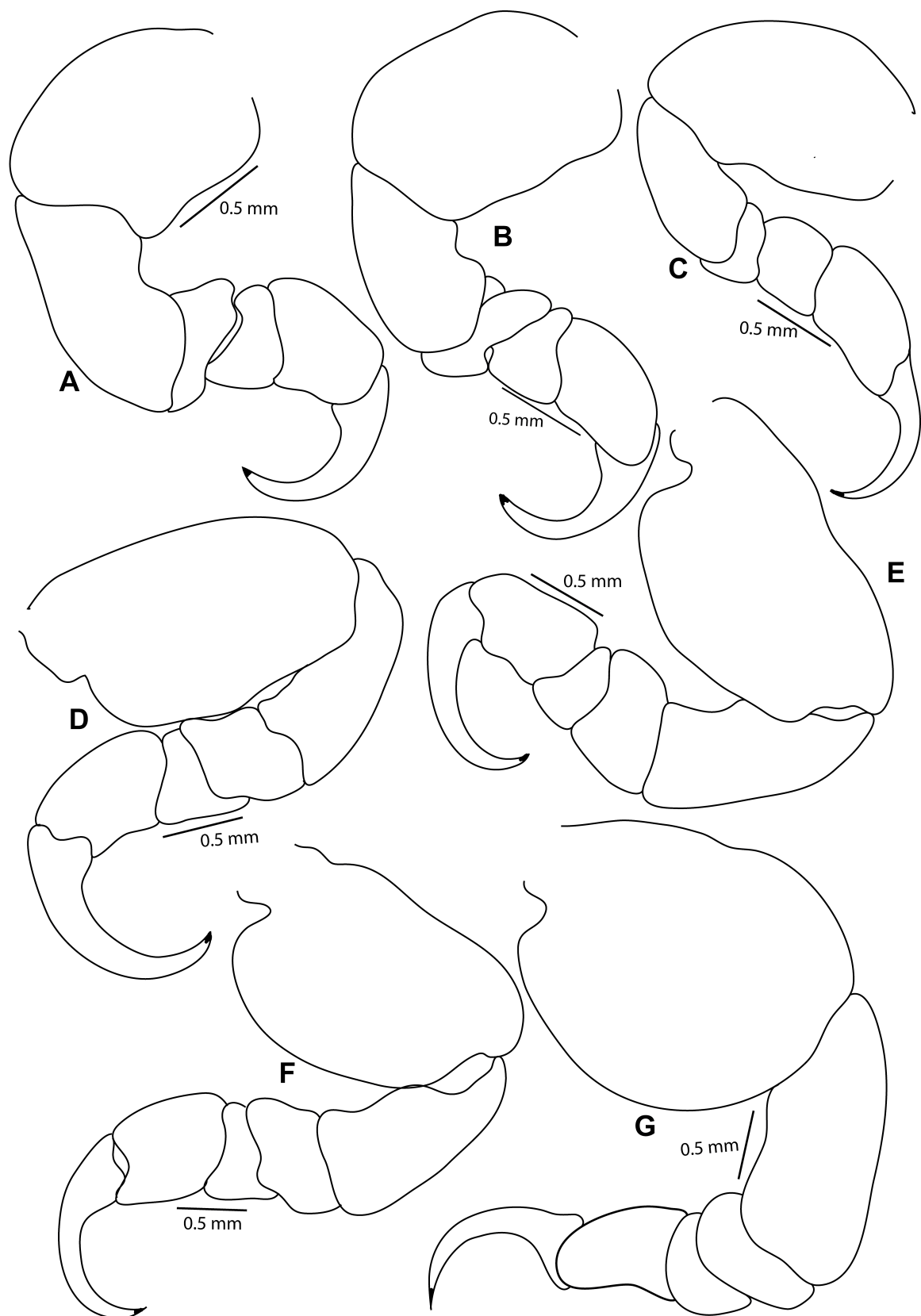


Fig. 5. *Lobothorax nicosmiti* Aneesh, Bruce and Kumar sp. nov., ovigerous female (Reg. No. ZSI/WGRC/IR.INV./14609). A–G, pereopods 1–7 respectively.

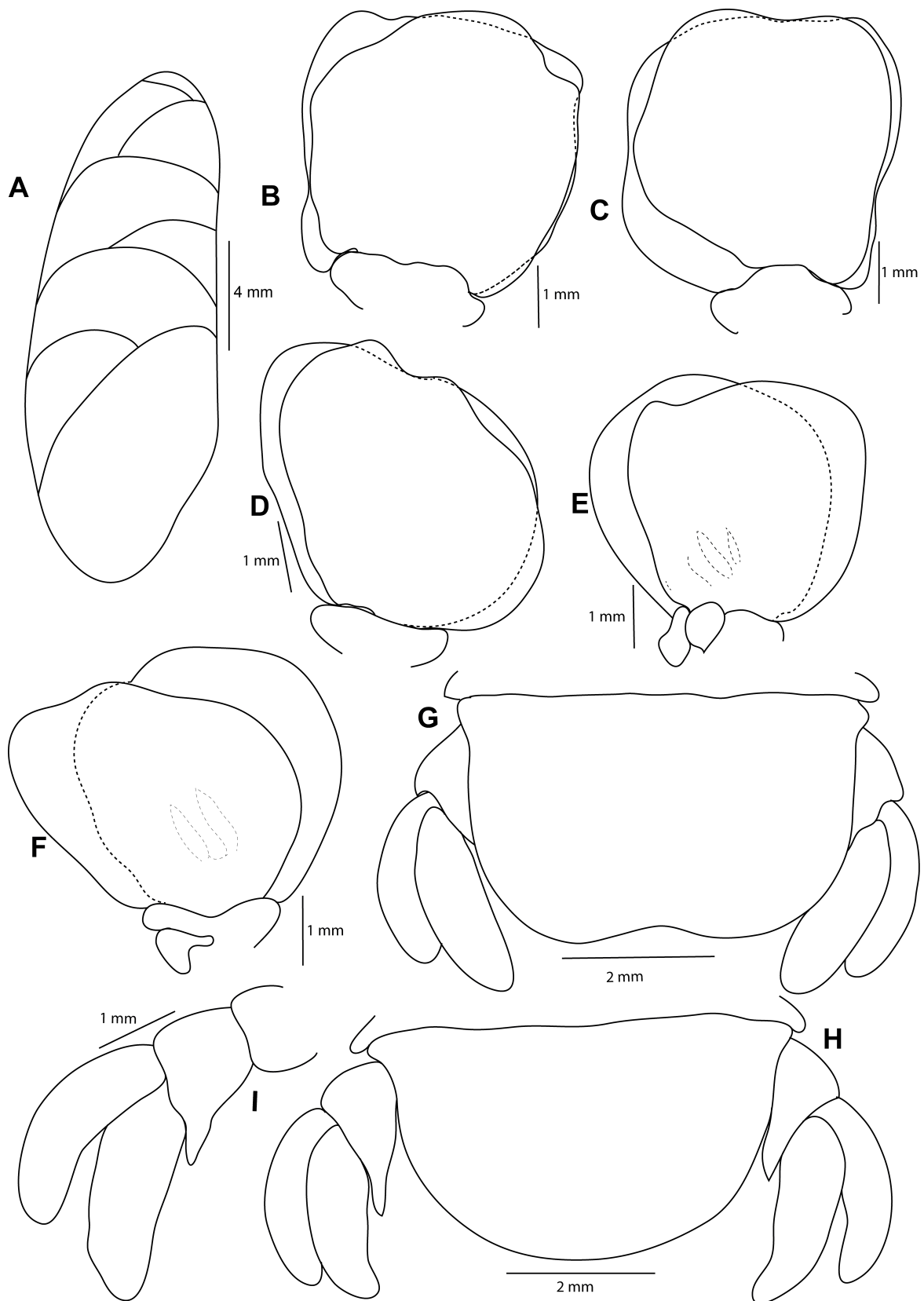


Fig. 6. *Lobothorax nicosmiti* Aneesh, Bruce and Kumar sp. nov., ovigerous female. A, brood pouch. B–F, pleopods 1–5. G, holotype, pleotelson and uropods. H, paratype, pleotelson and uropods. I, uropod.

weak fleshy ridges; endopods of all pleopods slightly shorter than exopod. Pleopods peduncles all with developed lateral lobes. *Pleopod 1* exopod 1.1 times as long as wide, lateral margin moderately convex, distally broadly rounded, mesial margin weakly convex; endopod as long as exopod, 1.2 times as long as wide, lateral margin straight, distally broadly rounded, mesial margin slightly convex; peduncle 3.0 times as wide as long. Pleopod endopods 4 and 5 each with proximomedial lobe.

Uropod 1 1.22 as longer than pleotelson; peduncle 0.5 times as long as endopod; rami extending beyond pleotelson, apices broadly rounded. *Endopod 2* 2.75 times as long as greatest width, 1.35 times as long as exopod, lateral margin convex, mesial margin not sinuate. *Exopod* curved to mesial, 2.4 times as long as greatest width, mesial margin concave, lateral margin convex.

Size: Length: ovigerous females (18 mm), non-ovigerous females (24 mm).

Colour: Female, live colour is light brownish yellow.

Host: *Promethichthys prometheus* (Cuvier, 1832) (Gempylidae).

Distribution: Known only from the type locality.

Remarks: *Lobothorax nicosmiti* sp. nov. can be identified by the following characters: pereonite 1 anterolateral expansion not extending to the anterior margin of cephalon; pereon dorsal surfaces coarsely pitted; pereonites without dorsal median longitudinal ridges; cephalon anteriorly truncate; pleotelson about 0.6 times as long as wide, posterior margin weakly emarginate, broadly sub-truncate, lateral margins convex; maxilliped palp article 3 with three RS; and pereopods basis 0.6–0.8 times wider than long with prominent carina. The description of *L. nicosmiti* sp. nov. from India is the third valid species of *Lobothorax* Bleeker, 1857.

Lobothorax nicosmiti sp. nov. is clearly distinct from *L. typus* in having: pereonites 1–7 with dorsal median longitudinal ridges in *L. typus* (vs dorsal ridges absent in *L. nicosmiti* sp. nov.); anterolateral margins of pereonite 1 projecting forward beyond the anterior margin of the cephalon in *L. typus* (vs. not reached to the anterior margin of cephalon in *L. nicosmiti* sp. nov.); maxilliped palp article 3 with 4 robust setae in *L. typus* (vs 3 robust setae *L. nicosmiti* sp. nov.). *Lobothorax nicosmiti* sp. nov. is equally distinct when compared to *L. laevis* by: body dorsal surface smooth in *L. laevis* (vs. body dorsal surfaces coarsely pitted in *L. nicosmiti* sp. nov.); cephalon subequal to pereonite 1 anterolateral expansion in *L. laevis* (vs. pereonite 1 anterolateral expansion not reached to the anterior margin of cephalon in *L. nicosmiti* sp. nov.); pleotelson subrectangular, posterior margin tapering to

caudomedial point in *L. laevis* (vs pleotelson posterior margin weakly emarginate, broadly sub-truncate, lateral margins convex in *L. nicosmiti* sp. nov.) (Table 1).

Key to the species of *Lobothorax* Bleeker, 1857

1. Body dorsal surface smooth; pleotelson sub-rectangular, posterior margin tapering to caudomedial point; cephalon subequal or not reaching to pereonite 1 anterolateral expansion 2
- Body dorsal surfaces coarsely pitted; pleotelson posterior margin weakly emarginate, broadly sub-truncate, lateral margins convex; cephalon extending well beyond pereonite 1 anterolateral expansion *L. nicosmiti* sp. nov.
2. Pereonites 1–7 with dorsal median longitudinal ridges; cephalon anteriorly triangular, forming narrowly rounded apex *L. typus* Bleeker, 1857
- Pereonites 1–7 without dorsal median longitudinal ridges; cephalon anteriorly subtruncate *L. laevis* Richardson, 1910

CONCLUSIONS

New material of a species of *Lobothorax* Bleeker, 1857 was found to differ consistently from the two species hitherto known to belong to the genus, namely *Lobothorax typus* Bleeker, 1857, the type species, and *Lobothorax laevis* Richardson, 1910. We therefore conclude that the specimens are distinct and describe the new species *Lobothorax nicosmiti* Anesh, Bruce and Kumar sp. nov. Comparison of the descriptions for *Lobothorax aurita* Schioedte and Meinert, 1883 and *L. typus* revealed no substantive differences, and *L. aurita* is synonymised with *L. typus*.

List of abbreviations

RS, robust seta/e.

TL, total body length.

W, maximal body width.

ZSI, Zoological Survey of India.

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Authors' contributions: PTA is the main worker on the topic, worked on illustrations and pictures and prepared the draft of the manuscript. PTA, NLB, and AB conceived and designed research, critically reviewed for improving the quality of the manuscript, BMR and STM

conducted the field work. All authors read and approved the final manuscript.

Competing interests: The authors declare that they have no competing interests. No potential conflict of interest was reported by the authors.

Availability of data and materials: Type and voucher specimens were deposited in the collections of Western Ghat Field Research Centre of Zoological Survey of India, Kozhikode (ZSI/WGRC).

Consent for publication: All the authors consent to the publication of this manuscript.

Ethics approval consent to participate: The specimens (hosts and parasites) are not under the listed category of experimental animals which need ethics approval.

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