TWO NEW SPECIES OF THE GENUS *Nannastacus* (CRUSTACEA, CUMACEA, NANNASTACIDAE) FROM SOUTH EAST ASIA

PETRESCU Iorgu

Abstract. PETRESCU (1997a, b) briefly described *Nannastacus inconstans* Hale, 1945 from Indonesia and Malaysia. After a careful revision that species become *N. gerkenae* n. sp. from Malaysia and *N. grantipai* n. sp. from Indonesia.

Keywords: *Nannastacus inconstans*, Malaysia, Indonesia, revision, new species.

Rezumat. Două noi specii ale genului *Nannastacus* (Crustacea, Cumacea, Nannastacidae) din Sud Estul Asiei. PETRESCU (1997a, b) a descris sumar pe *Nannastacus inconstans* Hale, 1945 din Indonezia şi Malaezia. După o atentă revizie specia a devenit *N. gerkenae* n. sp. din Malaezia şi *N. grantipai* n. sp. din Indonezia.

Cuvinte cheie: *Nannastacus inconstans*, Malaezia, Indonezia, revizie, noi specii.

INTRODUCTION

Nannastacus inconstans Hale, 1945 (Fig. 1) male was described from Australia (HALE, 1945); later, PETRESCU (2017 in press.) added the description of the female. The species was erroneously identified from Indonesian material (PETRESCU, 1997a) together with other eight species of *Nannastacus* (*N. antipai* Petrescu, 1995, *N. gamoi* Băcescu, 1992, *N. gibbosus* Calman, 1911, *N. hanseni* Calman, 1905, *N. inflatus* Hale, 1945 and *N. mitreai* Petrescu, 1995) and from Malaysia (PETRESCU, 1997b) (also found *N. antipai*, *N. gamoi*, *N. gibbosus*, *N. goniatus* Gamô, 1962, *N. mitreai*, *N. muelleri* Petrescu, 1997, *N. pectinatus* Gamô, 1962 and *N. wisseni* Petrescu, 1997).

Brief descriptions were provided. The material (males from Malaysia and 1 female from Indonesia) was redescribed as two new species in this paper.

MATERIAL AND METHODS

The material from Malaysia was collected and donated by dr. Hans - Georg Müller from Germany, that one from Indonesia, by dr. Modest Guţu, during the expedition organized by the "Grigore Antipa" Museum in 1991. Examination and drawings were realized on a microscope with camera lucida. Previously published drawings were scanned and reproduced here with the permission of the editors. The entire material belongs to the "Grigore Antipa" National Museum of Natural History, Crustacea collection (MGAB).

RESULTS AND DISCUSSIONS

Family Nannastacidae Bate, 1866
Genus *Nannastacus* Bate, 1865
Nannastacus gerkenae n. sp.
(Fig. 2).

Material examined: holotype male, MGAB CUM 185; paratypes: 5 males, MGAB CUM 1823, sta. MAS-3; 2 males, MGAB CUM 186, sta. MAS-6; 17 males, sta. MAS-16. Type locality: Malaysia, sta. MAS-3, 01.04.1991, leg. H.- G. Müller, Germany.

Etymology. The species is dedicated in honour of the famous American specialist in Cumacea, Dr. Sarah Gerken.

Description of paratype male MGAB CUM 186.

Body size: 1.09 mm.

Carapace (Fig. 2 A, B, C) 2 times as long as high, 1.4 times as long as large, with reticulated integument in the branchial region, more elevated in the posterior end; pseudorostral lobes 0.4 times carapace length; ocular lobe with two distinct group of 3 lenses each; a pair of dorsal ridges from behind the eyes to the mid-dorsal part; anterior part little excavated.

Pereonites and pleonites (Fig. 2 D) with serrate double mid-dorsal ridges.

Antenna 1 (Fig. 2 E) peduncle article 1 0.9 times rest of articles length, with 5 short simple and 2 longer simple setae; article 2 with 2 simple and 3 pedunculate setae, tubercle medially; article 3 with 4 pedunculate setae; main flagellum with 3 articles 0.8 times article 3 length; accessory flagellum with 1 short article; aesthetascs 3.3 times main flagellum length.

Maxilliped 3 (Fig. 2 F) basis 0.48 times maxilliped length, with few setules and 3 plumose setae; merus 4.75 times ischium length, with 2 plumose setae and 1 tooth; carpus 1.2 times merus length, with 1 tooth, setules, 1 simple and 1 plumose seta; propodus 0.8 times carpus length, with 2 pappose setae; dactylus 0.5 times propodus length, with 2 simple and 1 robust seta terminally; with exopod.

Pereopod 1 (Fig. 2 G) basis with hyaline crest on both margins, 0.48 times pereopod length; ischium with setules and 1 tooth; merus 2 times ischium length, with serration medially and 1 tooth; carpus 1.8 times merus length, with 4 setae and serration; propodus as long as carpus, with 3 simple setae; dactylus 0.5 times propodus length, with 4 simple and 1 robust terminal seta; with exopod.

Pereopod 2 (Fig. 2 H) basis 0.4 times pereopod length, with hyaline crest; merus 3 times ischium length, with 1 simple seta; carpus 1.8 times merus length, with 3 simple setae; dactylus 1.1 times propodus length, with 6 simple setae; with exopod.

Pereopods 3-5 (Fig. 2 I-K) with decreasing basis and increasing carpus; basis with hyaline crest on pairs 3 and 4; dactylus with short robust terminal seta; pairs 3 and 4 with exopods.

Uropod (Fig. 2 L) peduncle 0.57 times pleonite 6 length, 0.4 times endopod length, with serrate margins; endopod 3 times exopod length; exopod with long terminal simple robust seta; endopod with serrate margins and 3 pedunculate and 4 simple setae.

Discussions. *Nannastacus gerkenae* n. sp. is closely related with *N. inconstans* Hale, 1945 from Australia. PETRESCU, (1997a) described a presumed female specimen of *N. inconstans* Hale from Indonesia (*N. grantipai* n. sp.). (Table 1)

Table 1. Comparing morphological characters of *Nannastacus gerkenae* n. sp., *N. grantipai* n. sp. and *N. inconstans* Hale, 1945.

Morphologic character	***Nannastacus gerkenae* n. sp.**	***Nannastacus grantipai* n. sp.**	***Nannastacus inconstans* Hale**
Carapace ornamentation.	reticulated tubercles.	random tubercles.	reticulated tubercles.
Carapace anterior margin.	right.	acute.	acute.
Carapace dorsal ornamentation.	1 pair of ridges from behind the eyes to the mid-dorsal part.	1 short pair and 1 longer pair of ridges up to posterior end.	1 mid-dorsal ridge up to posterior end.
Pleonites 1-6 with dorsal pair of serrate ridges.	+	-	+
Antenna 1 peduncle article 2 setae.	2 simple and 3 pedunculate.	1 simple and 1 pedunculate.	not figured.
Maxilliped 3 merus and carpus with teeth.	1 tooth on merus and carpus.	without teeth.	not figured.
Pereopod 1 basis with hyaline crest.	+	+	+
Pereopod 2 basis with hyaline crest.	+	+	+
Pereopod 2 dactylus setae number.	6	9	8
Pereopods 3-5 dactylus.	dactylus with terminal seta.	dactylus with terminal seta.	dactylus fused with terminal seta.
Uropod peduncle/pleonite 6.	0.57	0.4	0.54
Uropod peduncle/endopod.	0.4	0.41	0.31
Uropod peduncle serrate margins.	both margins serrate.	short setae medially.	medial margin serrate.
Uropod endopod with pedunculate setae.	+	+	-
Uropod peduncle setae.	1 robust long terminal, 2 robust short subterminal, 1 simple medially.	4 simple medially.	1 robust long terminal, 1 robust short subterminal, 2 simple short subterminal.

Nannastacus grantipai n. sp.
(Fig. 3).

Material examined: holotype postmanca female, MGAB CUM 1325. Type locality: Indonesia, Kalimantan Island, Bontang, sta. 16, 2 m, 18.05.1991, leg. Modest Guţu.

Etymology. The species is dedicated in honor of Grigore Antipa, most remarkable Romanian zoologist and museologist, with the occasion of celebrating 150th anniversary of his birth (1867-1944).

Description holotype postmanca female MGAB CUM 1325.

Carapace (Fig. 3 A) 1.8 times as long as high, covered with random short tubercles, anterior margin acute, pseudorostral lobes 0.32 times carapace length, eyelobes with 2 groups of three lenses each.

Antenna 1 (Fig. 3 B) peduncle article 1 0.9 times rest of articles length, with 2 simple setae, article 2 1.1 times article 3 length, with 1 simple and 1 pedunculate seta on tubercle; main flagellum 0.4 times article 3 length, with 2 articles, accessory flagellum very short, with 1 article; aesthetascs 1.1 times main flagellum length.

Maxilliped 3 (Fig. 3 C) basis with 3 plumose setae; merus 2.75 times ischium length, with 1 plumose long seta; carpus 1.7 times merus length, with 3 plumose setae and short simple setae medially; propodus as long as carpus, with 1 plumose seta and 9 simple setae medially; dactylus 0.6 times propodus length, with 1 simple and 2 robust microserrate setae; with exopod.

Pereopod 1 (Fig. 3 D) basis 0.4 times pereopod length, with hyaline crest and 1 simple seta; merus 1.4 times ischium length, with 1 simple seta; carpus 1.4 times merus length, with 2 simple setae; propodus 1.05 times carpus length, with 4 simple setae; dactylus 0.45 times propodus length, with 4 simple short and 1 robust terminal seta as long as dactylus; with exopod (not figured).

Pereopod 2 (Fig. 3 E) basis 0.9 times rest of articles length, with hyaline crest and 2 simple setae; merus 2.75 times ischium length, with 2 simple setae; carpus 1.2 times merus length, with 3 simple setae; dactylus 2 times propodus length, with 9 simple setae; with exopod (not figured).

Pereopods 3 and 4 (Fig. 3 F, G) with decreasing basis and increasing carpus length; pereopod 4 propodus with 1 annulate seta; dactylus with short terminal robust seta.

Uropod (Fig. 3 H) peduncle 0.4 times pleonite 6 length, 0.4 times endopod length, with 5 simple short setae medially; endopod 6 times exopod length, with 2 pedunculate and 4 simple short setae medially, numerous short setae medially, terminal robust seta, broken.

Discussions. *Nannastacus grantipai* n. sp. from Indonesia is closely related with *N. gerkenae* n. sp. from Malaysia and *N. inconstans* Hale, 1945. It differs by: carapace ornamentation, antenna 1 setae, more setae on pereopod 2 dactylus and uropod with medial setae vs. subterminal setae in *N. gerkenae* n. sp. and *N. inconstans*.

ACKNOWLEDGEMENTS

Posthumous thanks to dr. Hans-Georg Müller (Germany) for donating us the Cumacea collected from Malaysia; to dr. Modest Guţu ("Grigore Antipa" Museum) for collecting Cumacea from Indonesian waters and for anonymous reviewer of the manuscript.

REFERENCES

HALE H. H. 1945. Australian Cumacea. No. 9. The Family Nannastacidae. *Records South Australian Museum.* **8**(2): 145-218. Adelaide/The Hassell Press/ http://direct.biostor.org/reference/114014.

PETRESCU I. 1997a. Cumacea. In: Results of the Zoological Expedition Organized by "Grigore Antipa" Museum in the Indonesian Archipelago (1991) I. Peracarida. *Travaux Museum d'Histoire naturelle "Grigore Antipa*", Bucarest. **38**: 115-175.

PETRESCU I. 1997b. Nannastacidae (Crustacea: Cumacea) from the Malayan shallow waters (South China Sea). *Beaufortia.* **47**(4): 137-138. Amsterdam/Universiteit van Amsterdam. Zoölogisch Museum/ https://www.narcis.nl/publication/RecordID/oai:naturalis.nl:504863.

PETRESCU I. 2017. On the family Nannastacidae (Crustacea, Cumacea) from the collection of the Australian Museum, Sydney (Australia). *Records of the Australian Museum.* **69** (in press). Sydney/Australian Museum.

Petrescu Iorgu
National Museum of Natural History "Grigore Antipa",
Kiseleff street, no. 1, 011341 Bucharest, Romania.
E-mail: iorgup@antipa.ro

Received: Mach 31, 2017
Accepted: June 27, 2017

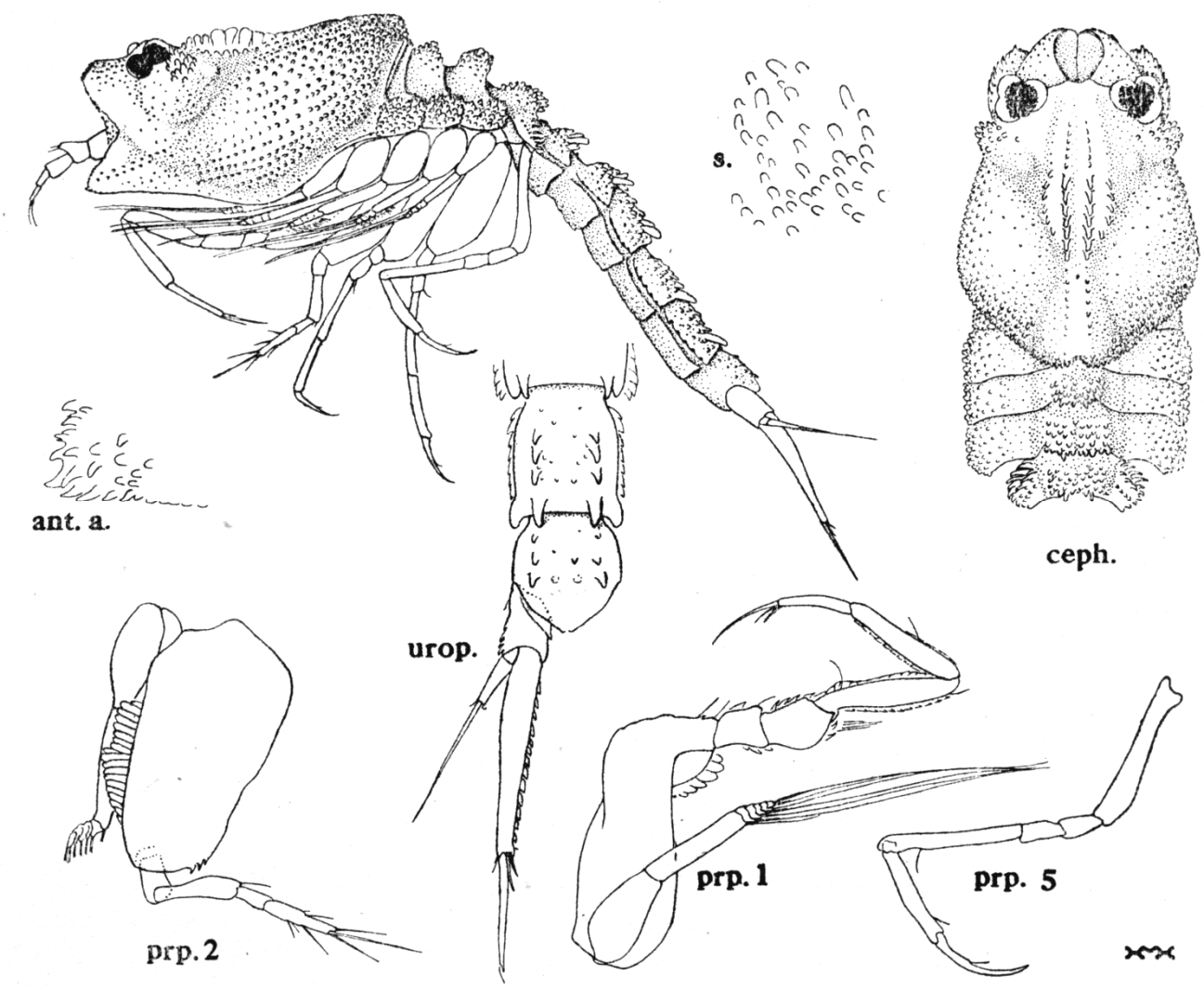

Figure 1. *Nannastacus inconstans* Hale, 1945 (Scanned from HALE, 1945). Adult male, cristate form; lateral view and (ceph.) cephalothorax from above; s. and a., sculpture of carapace over branchial region, and antero-lateral angle; prp., pereopods; urop., uropod with fifth pleon and telsonic somites.

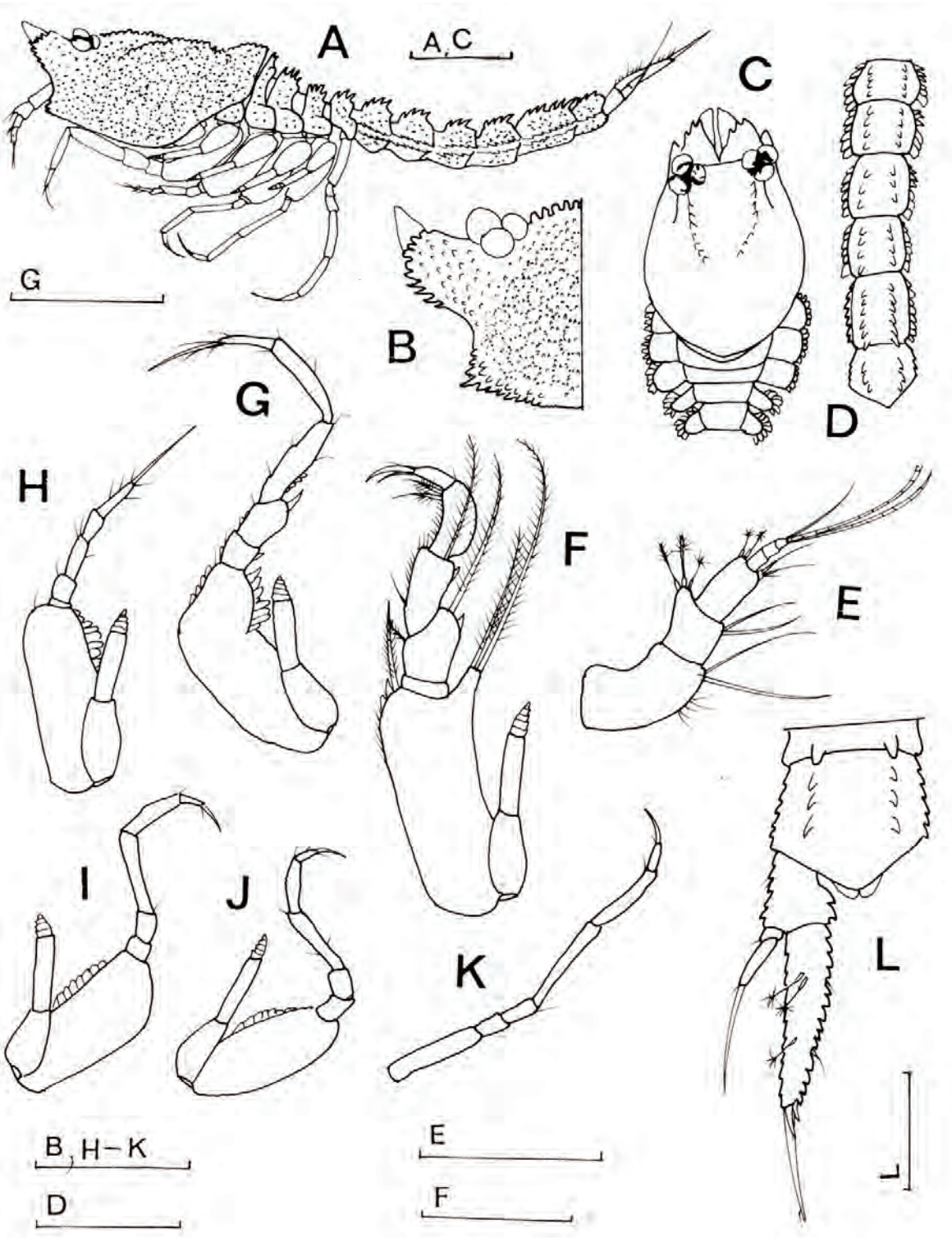

Figure 2. *Nannastacus gerkenae* n. sp. paratype male A, body, lateral view; B, carapace, anterior half; C, carapace and pereon, dorsal view; D, pleon, dorsal view; E, antenna 1; F, maxilliped 3; G, pereopod 1; H, pereopod 2; I, pereopod 3; J, pereopod 4; K, pereopod 5; L, uropod. Scale bars in mm: A-D, H-K, 0.2; E, F, L, 0.1; G, 0.15. (Scanned from PETRESCU, 1997b).

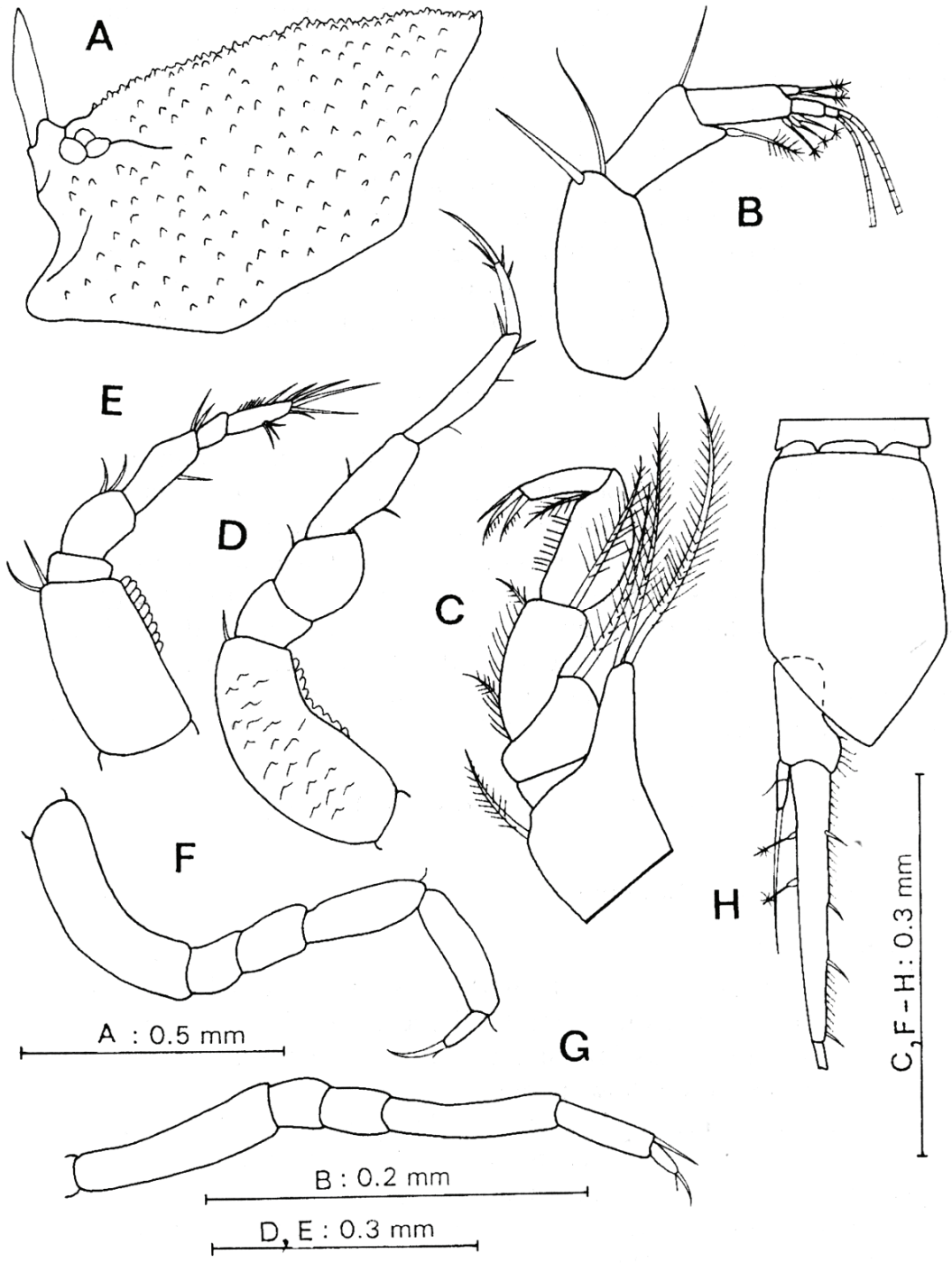

Figure. 3. *Nannastacus grantipai* n. sp. holotype female A, body, lateral view; B, antenna 1; C, maxilliped 3; D, pereopod 1; E, pereopod 2; F, pereopod 3; G, pereopod 4; H, uropod. Scale bars in mm: A, 0.5; B, 0.2; C, F, 0.3; D, E, 0.3
(Scanned from PETRESCU, 1997a).