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A new species of the deep-sea porter crab genus *Gordonopsis* Guinot & Richer de Forges, 1995 (Crustacea, Decapoda, Brachyura, Homolidae) from the South China Sea

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Abstract. A new large species of the deep-water porter crab *Gordonopsis* Guinot & Richer de Forges, 1995 (Brachyura, Homolidae) is described from the centre of the South China Sea. This is the second species known from this sea, the first being *G. ceto* Ng & Richer de Forges, 2020, from southern Taiwan. *Gordonopsis mazupo*, new species, however, is morphologically closest to *G. pacifica* Takeda & Suyama, 2019, from the western Pacific in southernmost Japan, and *G. hera* Ng & Richer de Forges, 2020, from the Bismarck Sea off Papua New Guinea; but can easily be distinguished by the proportions of the rostrum and pseudorostral spines, long ambulatory legs with a different armature, and differently structured gonopods.

Key words. taxonomy, new taxon, deep-water, Homoloidea, South China Sea

INTRODUCTION

Ng & Richer de Forges (2020) revised the homolid genus *Gordonopsis* Guinot & Richer de Forges, 1995, recognising three species from the Indian Ocean (*G. alaini* Ng & Richer de Forges, 2020, *G. profundarum* (Alcock & Anderson, 1899), and *G. robusta* Ng, Padate & Saravanane, 2019); and five from the Western Pacific (*G. ceto* Ng & Richer de Forges, 2020, *G. hera* Ng & Richer de Forges, 2020, *G. pacifica* Takeda & Suyama, 2019, *G. phorcys* Ng & Richer de Forges, 2020, and *G. velutina* Ng & Richer de Forges, 2020).

We here describe another new species from the South China Sea. Ng & Richer de Forges (2020) described *G. ceto* from the northern part of the South China Sea, near southwestern Taiwan, but the new species differs markedly from that species, and more closely resembles *G. pacifica* from the western Pacific (Okinotori Island in southernmost Japan) and *G. hera* from the Bismarck Sea off Papua New Guinea.

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MATERIAL AND METHODS

The specimen was collected at a depth of 897 m together with a bamboo coral from Zhongnan Seamount, South China Sea, using the human-operated vehicle *Shenhaiyongshi* during the cruise TS2-5 in March 2021. Once onboard, the male specimen was fixed and preserved in 95% ethanol, and deposited at the Repository of the Second Institute of Oceanography (RSIO SY353B6), Ministry of Natural Resources, Hangzhou, China.

The terminology follows Guinot & Richer de Forges (1995), Davie et al. (2015) and Ng & Richer de Forges (2020). Measurements provided (in millimetres) are of the maximum carapace width and length (including spines and rostrum), respectively. The abbreviations P2–P5 are used for pereiopods 2–5 (first to fourth ambulatory legs, respectively); G1 and G2 are used for male first and second gonopods, respectively.

SYSTEMATICS

Family Homolidae De Haan, 1839

Gordonopsis Guinot & Richer de Forges, 1995

Type species. *Homola profundorum* Alcock & Anderson, 1899, by original designation and monotypy.

Gordonopsis mazupo, new species
(Figs. 1–5)

Material examined. Holotype: male (33.4 × 24.3 mm) (SY353B6), Zhongnan Seamount, South China Sea, 13.93°N 115.41°E, 897 m, R/V *Tansuo2* cruise TS2-5, collected

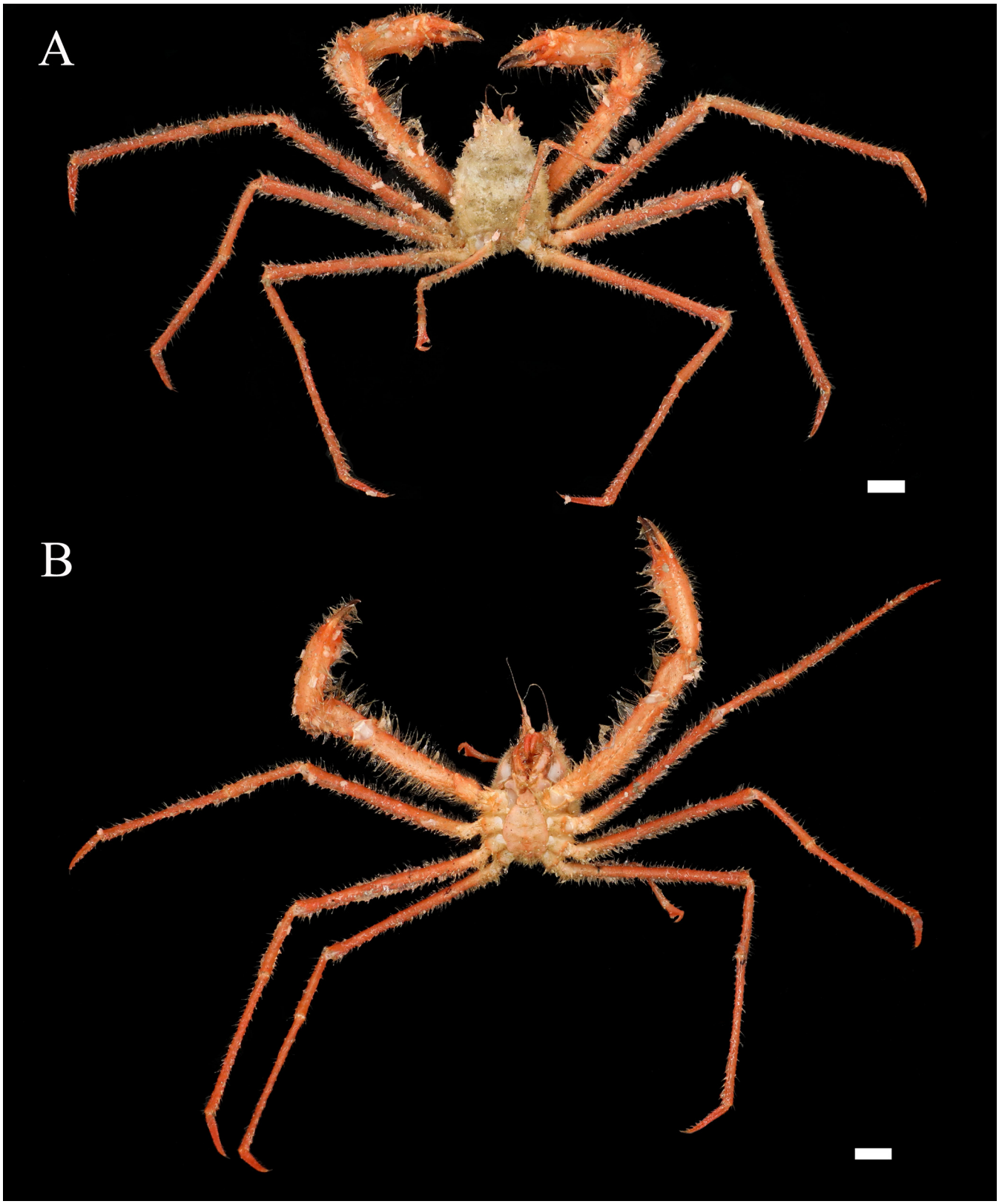

Fig. 1. *Gordonopsis mazupo*, new species, holotype male (33.4 × 24.3 mm) (SY353B6), South China Sea. Colour in life. Scale bars = 10.0 mm. Photographs by Yadong Zhou.

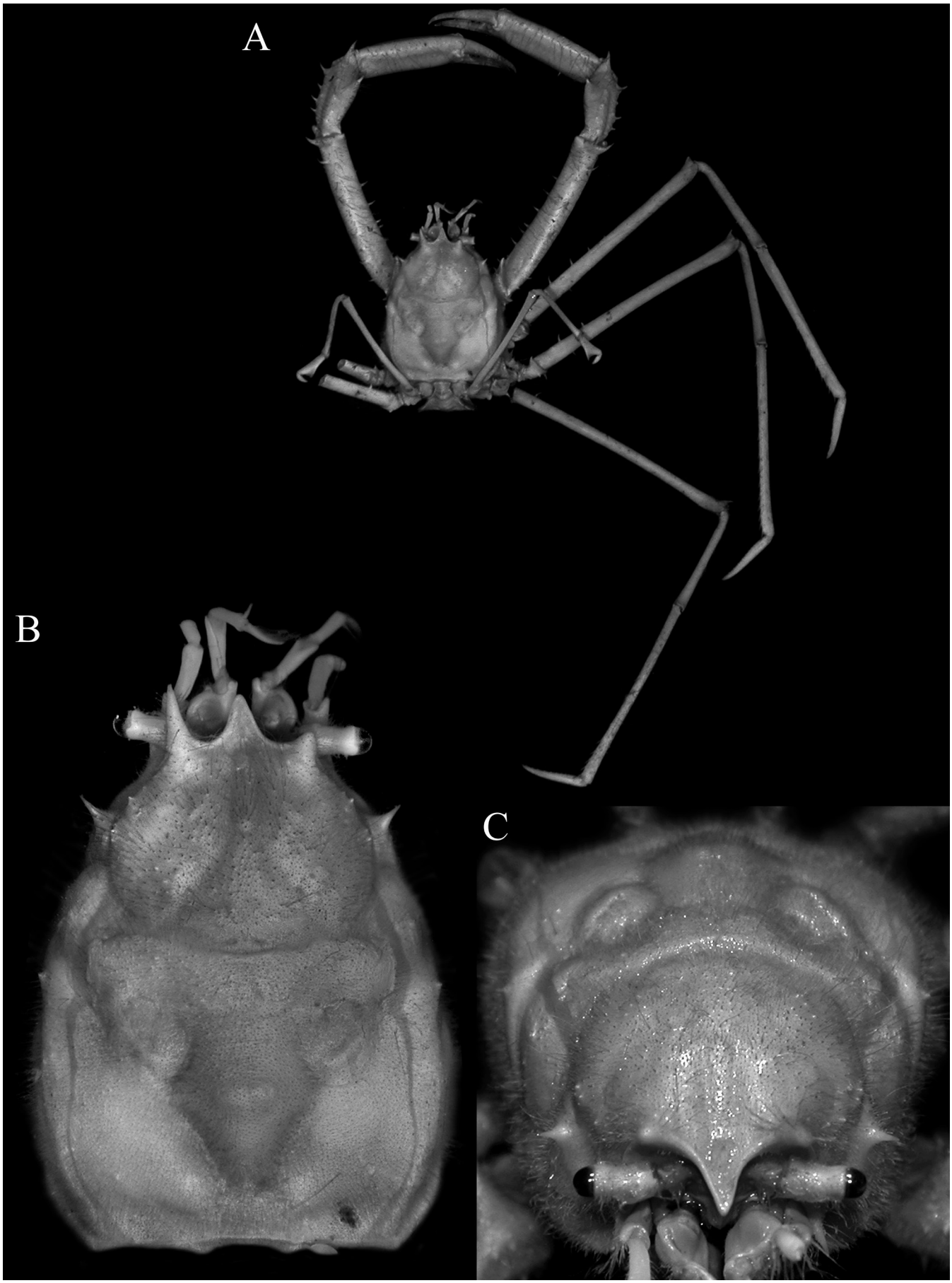

Fig. 2. *Gordonopsis mazupo*, new species, holotype male (33.4 × 24.3 mm) (SY353B6), South China Sea. A, overall habitus (legs detached); B, dorsal view of carapace; C, dorso-frontal view of carapace.

together with a bamboo coral by the HOV *Shenhaiyongshi*, dive SY353, coll. Yadong Zhou, 20 March 2021.

Diagnosis. Carapace longitudinally ovate, width to length ratio 0.73, distinctly wider posteriorly than anteriorly; dorsal carapace surface inflated, prominently convex in lateral view; dorsal parts with numerous soft setae, just obscuring surface; lateral parts with denser setae, partially obscuring surface (Figs. 2A–C, 3A, C, 4A, B). Rostrum relatively short, triangular, with 2 longer, obliquely directed pseudorostral spines, distinctly longer than rostrum; proepistome triangular with gently convex lateral margins, rounded tip and a low median longitudinal ridge (Figs. 2A–C, 3A, C, D, 4A); pseudorostral spines directed anterolaterally at angle of about 30° to median axis (Figs. 2A, B, 4A). Hepatic region gently inflated, with short but distinct obliquely directed spine (Figs. 2B, C, 3A, C, D, 4A); gastric region without spines, each mesogastric region with patch of small granules (Figs. 2B, C, 4A); latero-posterior tubercle on carapace small, just visible (Figs. 1B, 2B). Third maxilliped merus elongate with angular external angle, unarmed (Fig. 3B). Chelipeds very long (Figs. 1A, 2A, 3E); basis-ischium subquadrate, outer margin with 2 spines, inner margin with 3 spines, dorsal margin with 1 large and 1 small spine (Fig. 3E); merus triangular in cross-section, long, dorsal margin with 6 spines and spinules, and 2 distal spines which bracket chela, outer ventral margin with 8 or 9 spines or spinules, inner ventral margin with 6 or 7 spines or spinules (Figs. 2A, 3E); carpus longitudinally ovate, distal edge with 1 large spine, outer margin with 4 spines and spinules, inner margin with 1 spine, dorsal surface with shallow longitudinal depression, with 2 spinules (Fig. 3F, G). Ambulatory legs very long; basis-ischium subquadrate, with 4 or 5 sharp spines, one on each corner; P2 merus with 6 spines or spinules on proximal half of dorsal margin (excluding 1 distal spine), ventral margin with 1 spinule on proximal quarter (Fig. 4C, I); P3 merus with 2 spines or spinules on proximal quarter of dorsal margin (excluding 1 distal spine), ventral margin with 1 spinule on proximal quarter (Fig. 4D, J); P4 merus with 1 spine on proximal part of dorsal margin (excluding 1 distal spine), ventral margin with 1 small sharp granule on proximal part, outer surface with 1 strong spine on proximal part (Fig. 4E, K, L); P5 merus slender, unarmed on all margins, reaching distinctly beyond gastric groove when folded anteriorly; carpus long, propodus short, enlarged, forming prominent pseudochela with stout, gently curved dactylus; occlusal margin of fixed finger with 7 spines, that of dactylus with 7 or 8 spines and spinules (Fig. 4F, G, H); outer margins of P2 and P3 coxae with 1 or 2 short sharp spines; that of P4 coxa with 1 short proximal spine (Fig. 5A, B). Telson subtriangular, with proximal part distinctly wider, distal part prominently narrowing to acute tip (Fig. 4B). G1 relatively short, stout, distal part subtruncate with gently convex tip (Fig. 5C, D, E, G, H). G2 stout, tubular, subequal to G1 length, distal portion cup-shaped (Fig. 5F, I)

Description of male holotype. Carapace longitudinally ovate, width to length ratio 0.73, distinctly wider posteriorly than anteriorly; dorsal carapace surface prominently convex in lateral view, inflated; regions well-defined, separated by distinct grooves; lateral margins distinctly convex; dorsal parts with numerous soft setae, just obscuring surface; lateral parts with denser setae, partially obscuring surface, relatively denser on hepatic, pterygostomial and suborbital regions (Figs. 2A–C, 3A, C, 4A, B). Rostrum relatively short, triangular, sharp, margin cristate, with 2 longer, obliquely directed pseudorostral spines (right one damaged), distinctly longer than rostrum; proepistome triangular with gently convex lateral margins and rounded tip, with a low but distinct median longitudinal ridge (Figs. 2A–C, 3C, D, 4A). Supraorbital margin relatively narrow, C-shaped; pseudorostral spines directed anterolaterally at angle of about 30° to median axis (Figs. 2A, B, 4A). Eyes with short ocular peduncle, cornea prominent; no discernible orbit (Figs. 2A–C, 3A, C, 4A). Hepatic region gently inflated, with short but distinct obliquely directed spine (Figs. 2B, C, 3A, C, D, 4A). Gastric region without spines, each mesogastric region with patch of small granules (Figs. 2B, C, 4A). Gastric groove well marked, with distinct ovate gastric fossae just above (Figs. 2A–C, 3A, C, 4A). Cardiac region swollen; branchial region inflated, with distinct branchio-cardiac grooves (Figs. 2A–C, 3A, C, 4A). Latero-posterior tubercle on carapace small, just visible (Figs. 1B, 2B). Base of antenna, with strong anteriorly directed spine adjacent to it on pterygostomial region (Figs. 3A, D). Antennal flagellum short, second and third articles thick, setose (Fig. 3D). Epistome subrectangular, posterior margin with median part subtriangular, medially divided by fissure (Fig. 3D).

Third maxilliped pediform, covered with setae but unarmed; ischium rectangular, shorter than merus, with shallow longitudinal shallow groove; merus elongate, subovate, with angular external angle but unarmed, margin uneven and without spines or teeth; palp (carpus, propodus and dactylus) elongate, reaching to proximal margin of ischium (Fig. 3B).

Chelipeds very long (Figs. 2A, 3E). Basis-ischium subquadrate, outer margin with 2 spines, inner margin with 3 spines, dorsal margin with 1 large and 1 small spine (Fig. 3E); merus triangular in cross-section, long, dorsal margin with 6 spines and spinules, and 2 distal spines which bracket chela, outer ventral margin with 8 or 9 spines or spinules, inner ventral margin with 6 or 7 spines or spinules (Figs. 2A, 3E); carpus longitudinally ovate, distal edge with 1 large spine, outer margin with 4 spines and spinules, inner margin with 1 spine, dorsal surface with shallow longitudinal depression, with 2 spinules (Fig. 3F, G). Chela relatively stout; outer and inner surfaces of palm gently rugose; fingers long, straight, slender, about half length of palm; cutting edge of dactylus with tooth on proximal third, rest of edge blade-like; cutting edge of fixed finger with 2 basal teeth, rest of edge unarmed (Fig. 3H, I). Coxa with strong basal spine, distal edge with rounded projection, otherwise unarmed (Fig. 4B).

Ambulatory legs very long; carpus laterally compressed, long, unarmed; propodus very long, subequal or just shorter than merus, distal part of ventral margin with sharp stiff setae; dactylus almost straight except for gently curved distal part, ventral margin lined with stiff setae and spinules; basis-ischium subquadrate, with 4 sharp spines, one on each

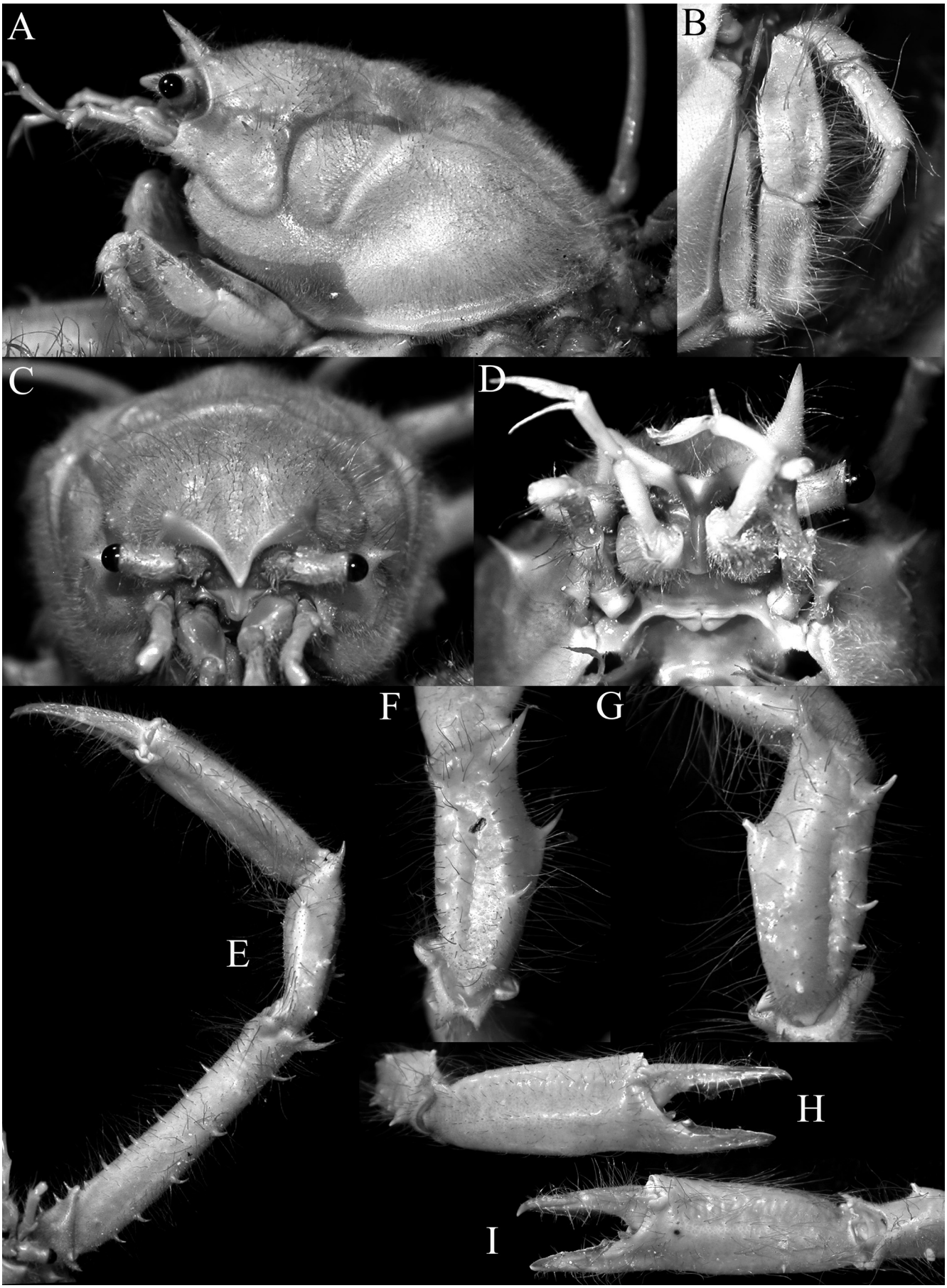

Fig. 3. *Gordonopsis mazupo*, new species, holotype male (33.4 × 24.3 mm) (SY353B6), South China Sea. A, lateral view of cephalothorax; B, left third maxilliped; C, frontal view of cephalothorax; D, ventral view showing buccal cavity, epistome, antennae and antennules; E, dorsal view of carpus of left cheliped; F, dorsal view of carpus of right cheliped; G, outer view of right chela; H, outer view of right chela; I, inner view of right chela.

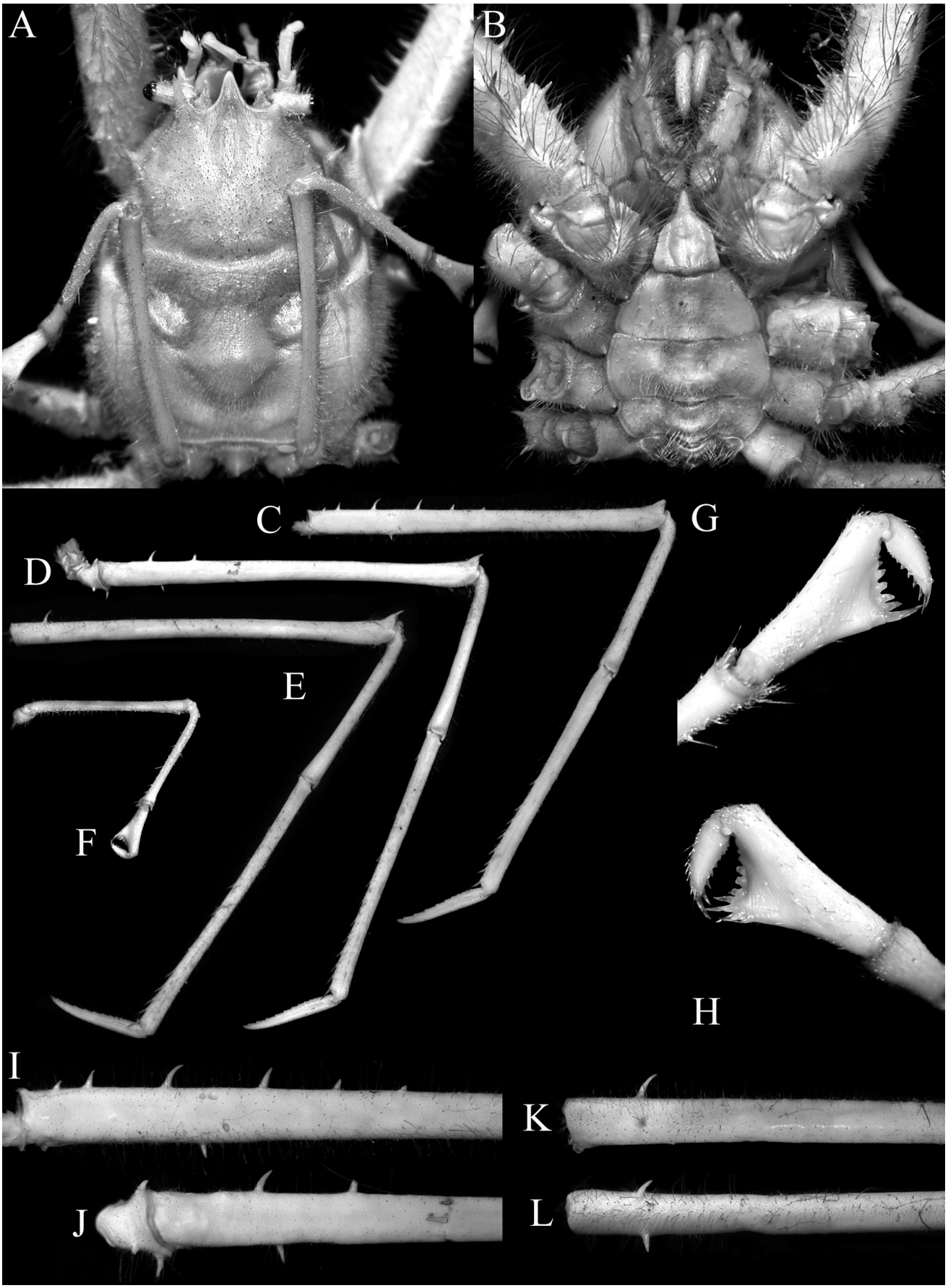

Fig. 4. *Gordonopsis mazupo*, new species, holotype male (33.4 × 24.3 mm) (SY353B6), South China Sea. A, dorsal view of carapace showing relative P5 length; B, ventral view of cephalothorax showing pleon; C–F, right P2–P5, respectively (all to same scale); G, right P5 pseudochela; H, left P5 pseudochela; I, proximal part of right P2 merus (lateral view); J, proximal part of right P3 merus (lateral view); K, proximal part of right P4 merus (lateral view); L, proximal part of right P4 merus (view from flexor margin showing median spine on lateral surface).

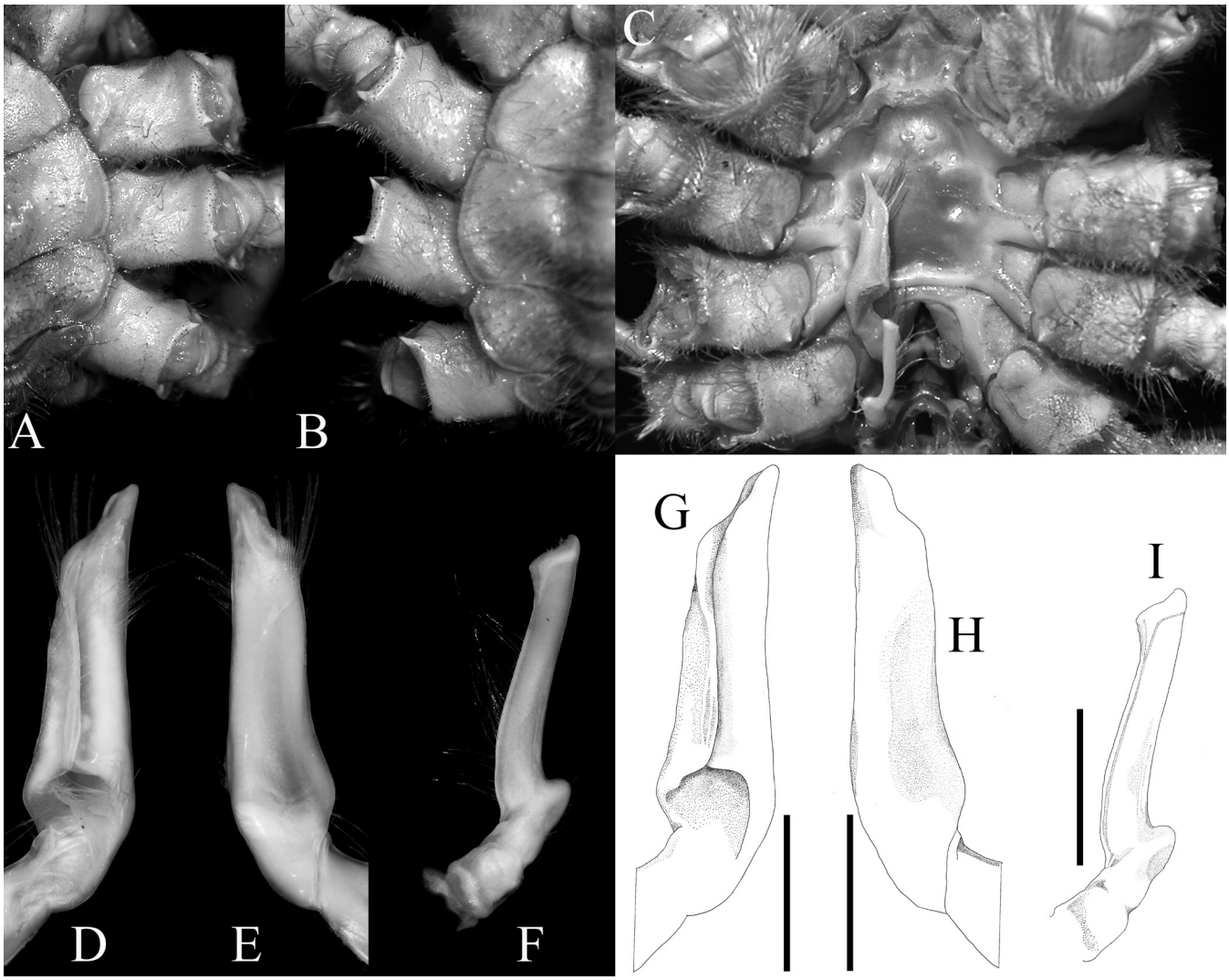

Fig. 5. *Gordonopsis mazupo*, new species, holotype male (33.4 × 24.3 mm) (SY353B6), South China Sea. A , left P2–P4 coxae and basis-ischia (denuded); B, right P2–P4 coxae (denuded); C, sternopleonal cavity with right G1 and G2 in situ; D, G, left G1 (ventral view); E, H, left G1 (dorsal view); F, I, left G2 (ventral view). G–I, drawn to same scale. Scale bars = 5 mm.

corner (right P4 has 5 spines); P2 merus with 6 spines or spinules on proximal half of dorsal margin (excluding 1 distal spine), ventral margin with 1 spinule on proximal quarter (Fig. 4C, I); P3 merus with 2 spines or spinules on proximal quarter of dorsal margin (excluding 1 distal spine), ventral margin with 1 spinule on proximal quarter (Fig. 4D, J); P4 merus with 1 spine on proximal part of dorsal margin (excluding 1 distal spine), ventral margin with 1 small sharp granule on proximal part, outer surface with 1 strong spine on proximal part (Fig. 4E, K, L); P5 merus slender, unarmed on all margins, reaching distinctly beyond gastric groove when folded anteriorly; carpus long, propodus short, enlarged, forming prominent pseudochela with stout, gently curved dactylus; occlusal margin of fixed finger with 7 spines, that of dactylus with 7 or 8 spines and spinules (Fig. 4F, G, H). Outer margins of P2 and P3 coxae with 1 or 2 short sharp spines; those of P4 coxa with 1 short proximal spine (Fig. 5A, B).

Sternopleonal cavity wide, surface relatively flat (Fig. 5C). Pleon subovate; all somites free, somite 4 widest; telson subtriangular, with proximal part distinctly wider, distal part prominently narrowing to acute tip (Fig. 4B). G1 relatively short, stout, distal part subtruncate with gently convex tip (Fig. 5C, D, E, G, H). G2 stout, tubular, subequal to G1 length, distal portion cup-shaped (Fig. 5F, I).

Colour. Carapace yellowish; ventral surface, chelipeds and ambulatory legs orange (Fig. 1).

Etymology. The species is named after the Chinese Goddess or Grandmother of the Sea, Mazu. The name is used as a noun in apposition.

Remarks. *Gordonopsis mazupo*, new species, most closely resembles *G. pacifica* in the carapace shape and swollen dorsal carapace features (Fig. 3A, C), and both possess a prominent spine on proximal outer surface of P4 (Fig. 4E, K, L). The ambulatory legs (P2–P5) of *G. mazupo*, however, are much longer than those of *G. pacifica* (cf. Figs. 2A, 4C–F), with the P5 reaching well beyond the gastric groove of the carapace when folded anteriorly (Fig. 4A). In *G. pacifica*, the P5 reaches just slightly beyond the gastric groove (Ng & Richer de Forges, 2020: fig. 16A). In addition, the

pseudorostral spines of *G. mazupo* are much longer than the rostrum (Fig. 2A, B) (versus pseudorostral distinctly shorter in *G. pacifica*; cf. Ng & Richer de Forges, 2020: fig. 14A, B); and the distal part of the G1 is slightly longer and more subtruncate in shape (Fig. 5C–E, G, H) (versus distal shorter and sharper in *G. pacifica*; Ng & Richer de Forges, 2020; fig. 16B, C, M, N).

The long P2–P5 of *G. mazupo* is actually closest to the condition in *G. hera*; but in this species, the carapace is distinctly less inflated, with the dorsal surface flatter, the pseudorostral spines are set further apart from the rostrum; and the P5 dactylus of the pseudochela is relatively stouter (cf. Ng & Richer de Forges, 2020: figs. 17A, B, 18A, 19H).

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