

TWO NEW SPECIES OF FRESHWATER CRABS OF THE GENUS
SINOLAPOTAMON TAI & SUNG, 1975 (DECAPODA, BRACHYURA,
POTAMIDAE) FROM GUANGXI ZHUANG AUTONOMOUS
REGION, CHINA

BY

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ABSTRACT

The present study describes two new species of the hitherto monotypic potamid genus *Sinolapotamon* Tai & Sung, 1975, from Guangxi Zhuang Autonomous Region, China. The new species are distinguished from *S. patellifer*, the type species, by the shapes of the external orbital angles and epibranchial teeth, as well as structures of the epistomes and the male first gonopods.

RÉSUMÉ

La présente étude décrit deux nouvelles espèces d'un genre potamidé jusqu'à présent monotypique *Sinolapotamon* Tai & Sung, 1975, de la région autonome de Guangxi Zhuang, Chine. La nouvelle espèce se distingue de *S. patellifer*, l'espèce type, par les formes des angles externes orbitaux et des dents épibranchiales, ainsi que par les structures de l'épistome et les premiers gonopodes mâles.

INTRODUCTION

China has the highest number of freshwater crab species in the world (Dai, 1999; Ng et al., 2008; Cumberlidge et al., 2009). Many of the Chinese freshwater crabs also exhibit most diverse male first gonopod structures (Dai, 1999). *Sinolapotamon* Tai & Sung, 1975, is characterized by an unusual, fan-shaped male first gonopod. The genus currently contains only the poorly known *S. patellifer* (Wu, 1934)

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from Loshing (= Luocheng), Guangxi Zhuang Autonomous Region. Dai (1999) recorded additional specimens of *S. patellifer* from Xingan and Jinxiu, Guangxi Zhuang Autonomous Region. The male first gonopod of *Potamon* (*Potamon*) *anacoluthon* Kemp, 1918, from Hong Kong resembles that of *Sinolapotamon*, but Ng & Dudgeon (1992) established *Cryptopotamon* for the species, emphasizing differences in characters of the carapace and the male first gonopod. Dai (1999) regarded *Cryptopotamon* as a junior synonym of *Sinolapotamon*, but Ng (2000) and Ng et al. (2008) resurrected it.

Among our extensive collections of freshwater crabs from various provinces of China were two species of *Sinolapotamon* from Nanning City and Liujiang City, Guangxi Zhuang Autonomous Region. Comparisons with the holotype of *S. patellifer* show that these two species should be regarded as new. The present study describes the two new species in detail.

Specimens examined are deposited in the Institute of Zoology (IOZ), Chinese Academy of Sciences (CAS), Beijing, China; Department of Parasitology, Medical College of Nanchang University, Nanchang, China (NCU MCP); National Institute for Parasitic Diseases, Chinese Center for Disease Control and Prevention, Shanghai, China (CDC-NIPD); the National Museum of Natural Science, Taichung, Taiwan (NMNS); and the Zoological Reference Collection, Raffles Museum of Biodiversity Research, National University of Singapore (ZRC). Measurements provided are of the carapace length (CL) by the carapace width (CW). The abbreviations G1 and G2 are used for the male first and second gonopods, respectively.

MATERIAL

Comparative material examined. — *Sinolapotamon patellifer* (Wu, 1934): holotype male, 22.3 × 28.0 mm, IOZ, Chinese Academy of Sciences, CB5126, Luocheng, Guangxi Zhuang Autonomous Region, coll. 26 May 1928; paratype female, 19.6 × 24.3 mm, same data as holotype.

TAXONOMY

POTAMIDAE Ortmann, 1896

POTAMISCINAE Ortmann, 1896 (sensu Yeo & Ng, 2003)

Sinolapotamon Tai & Sung, 1975

***Sinolapotamon auriculatum*, new species (figs. 1-4)**

Material examined. — Male holotype, 22.0 × 25.0 mm, NCU MCP 2009.0001, Dong Men Zhuang, Shuangluo Village, Sanli Town, Shanglin County, Nanning City, Guangxi Zhuang Autonomous Region, coll. L. Shi & X. Zhou, 14 Aug. 2006. Paratypes: 1 male, 19.7 × 22.4 mm, 1 female, 22.3 × 26.4 mm, NCU MCP 2009.0002; 1 male, 20.8 × 25.3 mm, ZRC 2009.0922; 1 male, 20.5 × 25.0 mm, NMNS, same data as holotype; 3 males, 21.2 × 25.2 – 23.2 × 26.8 mm, NCU MCP 2009.0003, same locality and collectors as holotype, 15 Aug. 2006; 1 male, 19.4 × 22.5 mm,

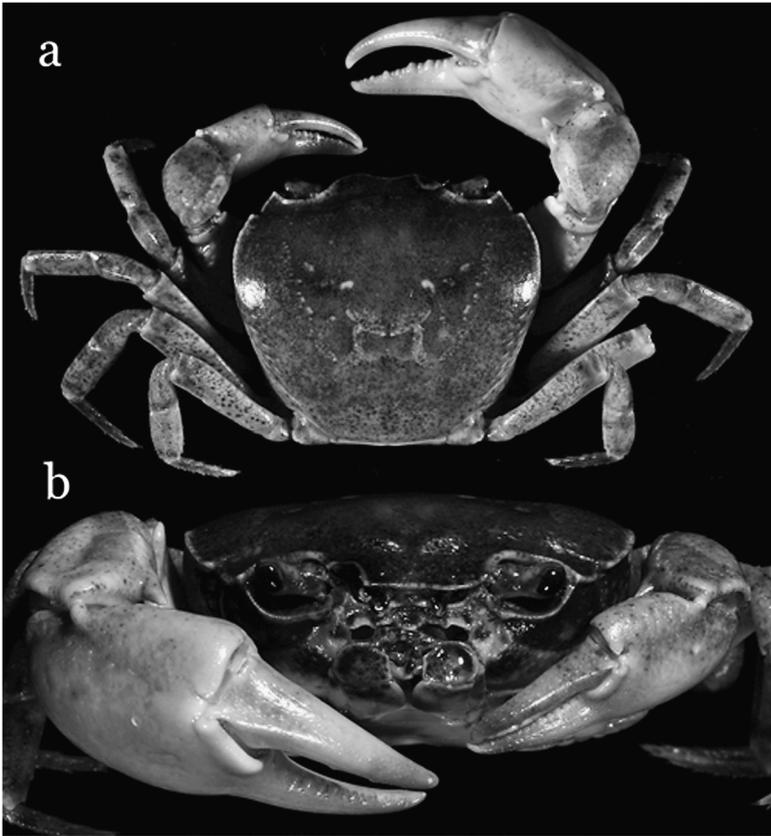


Fig. 1. *Sinolapotamon auriculatum* new species. a, habitus; b, cephalothorax, anterior view. Male holotype, 22.0 × 25.0 mm, NCU MCP 2009.0001.

1 female, 23.4 × 26.8 mm, CDC-NIPD, same data as NCU MCP 2009.0003; 4 males, 21.0 × 24.9 – 24.1 × 29.6 mm, 19 females, 19.4 × 22.3 – 22.4 × 26.5 mm, NCU MCP 2009.0004, same locality and collectors as holotype, 25 Aug. 2008.

Description. — Carapace (fig. 1a) little broader than long, widest across anterior third of carapace, CW 1.11–1.23 times CL (mean 1.17, n = 33); dorsal surface glabrous, convex longitudinally and transversely. Epigastric cristae distinct, oblique, postorbital cristae and cervical groove indistinct, H-shaped gastric groove shallow. Front directed antero-ventrally, anterior margin weakly bilobed. Supra- and infraorbital margins (fig. 1b) cristate, infraorbital margin barely granulated, suborbital and pterygostomial regions granulated. External orbital angle distinct, sharp, with acute angle, directed anteriorly, outer margin about 2 times inner margin; epibranchial tooth sharp, inner margin mesially not extending onto dorsal surface of carapace; anterolateral margin weakly convex laterally, cristate, lined with fine granules.

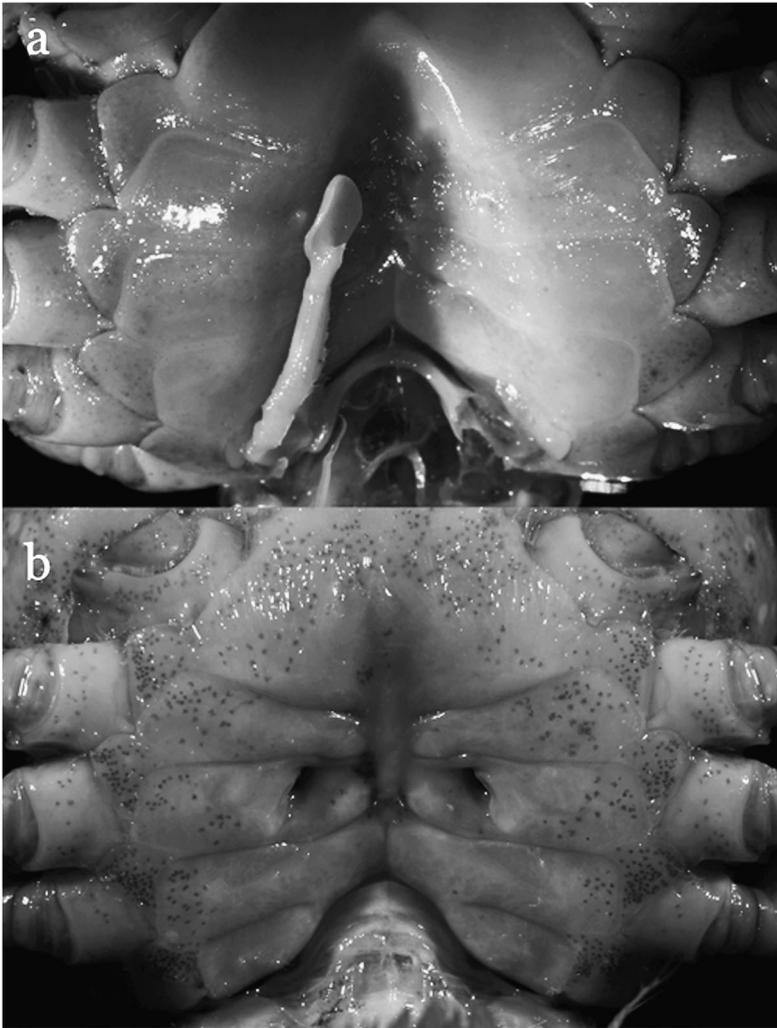


Fig. 2. *Sinolapotamon auriculatum* new species. a, male sternum (holotype, 22.0 × 25.0 mm, NCU MCP 2009.0001); b, female sternum (paratype, NCU MCP 2009.0002).

Epistome (fig. 1b) with cristate posterior margin, granulated, medial projection laterally demarcated by deep grooves, granules larger around median projection.

Thoracic sternites 2 and 3 demarcated by transverse shallow groove; sternites 3 and 4 demarcated by shallow oblique depressions. Abdominal cavity (fig. 2a) reaching imaginary line joining posterior ends of cheliped coxae, cavity relatively wide, distance between inner ends of sutures between thoracic sternites 4 and 5 less than one-third of distance between sternal condyles; sternal condyle placed on middle of thoracic sternite 5. Vulva (fig. 2b) rectangular in shape, oblique.

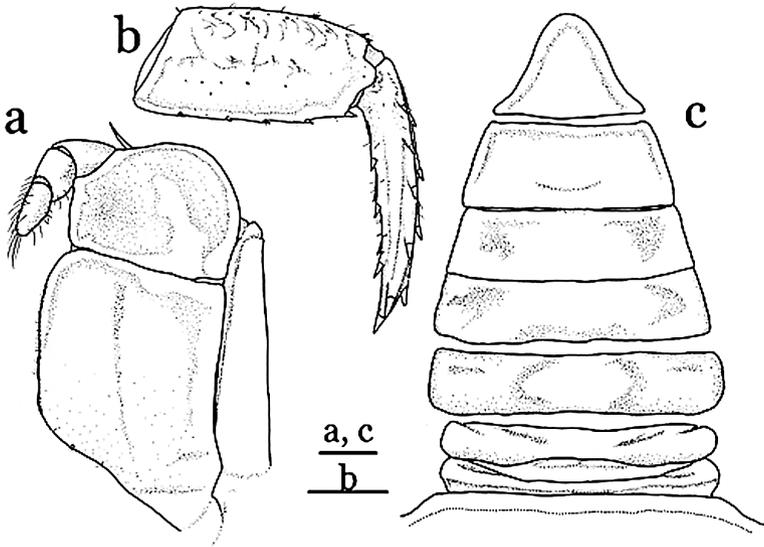


Fig. 3. *Sinolapotamon auriculatum* new species. a, left third maxilliped; b, P5R; c, abdomen, telson, and posterior margin of carapace. Male holotype, 22.0 × 25.0 mm, NCU MCP 2009.0001. Scales: a, 1 mm; b, c, 2 mm.

Third maxilliped (fig. 3a) rectangular, midlength of merus slightly more than half length of ischium, exopod reaching proximal third of outer margin of merus, flagellum present, shorter than width of merus.

Chelipeds unequal in male (fig. 1a) major chela larger, relatively longer. Merus of major cheliped with granulated dorsal and ventral margins, granules on ventral margins larger; carpus with strong inner angle, with proximoventral small granule; palm with moderately convex outer surface; fingers as long as palm, gape present when chela closed, cutting edge regularly lined with small and large teeth.

Ambulatory legs (figs. 1a, 3b) relatively short, second leg longest when stretched laterally, combined length of merus to dactylus of third ambulatory legs 1.42-1.52 times CL (mean 1.47, n = 5); anterior margins of meri smooth, with subdistal angle, merus of second ambulatory leg 0.50-0.58 times CL (mean 0.54, n = 5); carpi and propodi relatively short and stout; dactyli longer than respective propodi, dactyli with 4 rows of small spines, subdistal spine of outer dorsal margin of fourth leg (fig. 3b) stronger than distal spine, placed on the outer dorsal margin.

Male first abdominal somite (fig. 3c) with transverse ridge; third somite widest; telson triangular, with slightly concave lateral margins, width 1.33-1.48 times (mean 1.43, n = 4) length, 1.28-1.37 times (mean 1.32, n = 4) longer than sixth somite, sixth somite width 2.68-2.76 times (mean 2.71, n = 3) length.

G1 (fig. 4a-d) long, distal segment mitten-like, longer than half length of subterminal segment, with dorsal lobe and ventral short projection, distal two-thirds of dorsal surface elliptically expanded, ventral projection reaching proximal

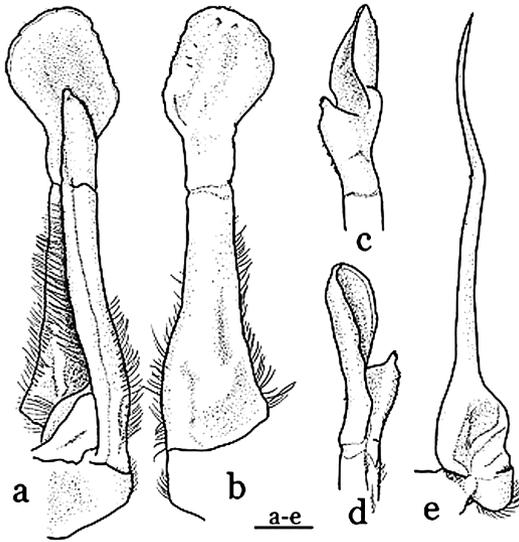


Fig. 4. *Sinolapotamon auriculatum* new species. a, left G1, ventral view; b, left G1, dorsal view; c, distal segment of left G1, lateral view; d, distal segment of left G1, mesial view; e, G2. Male holotype, 22.0 × 25.0 mm, NCU MCP 2009.0001. Scale: 1 mm.

half of distal segment, distally terminating in tube-like structure. G2 (fig. 4e) slender, longer than G1.

Etymology. — The species name is from the Latin word “auriculatum”, meaning “auriculate” or ear-shaped, alluding to the shape of the elliptical dorsal lobe of the distal segment of the G1. The name is used as an adjective.

Remarks. — Although Wu (1934) described *S. patellifer* in detail, his drawing of the G1 is rather schematic (Wu, 1934, fig. 3). Re-examination of the holotype of *S. patellifer* reveals that the shape of the G1 is different from Wu’s (1934, fig. 3) drawing; a dorsal lobe of the distal segment occupies about the distal three-fifths of the distal segment (fig. 5b, c). In this regard, *S. auriculatum* new species, is similar to *S. patellifer*. *Sinolapotamon auriculatum* can, however, be differentiated from *S. patellifer* by other characters of the G1. In *S. auriculatum*, the ventral projection of the distal segment of the G1 is short, reaching only to the proximal half of the distal segment, and the dorsal lobe of the distal segment occupies the distal two-thirds of the dorsal segment (fig. 4a–d). In contrast, the ventral projection of *S. patellifer* is long, reaching beyond the proximal two-thirds of the distal segment, and the dorsal lobe of the distal segment occupies the distal three-fifths (fig. 5b, c). Furthermore, *S. auriculatum* can also be differentiated from *S. patellifer* by its pointed epibranchial tooth (fig. 1a) (vs. rounded epibranchial tooth in *S. patellifer*, fig. 5a), acute external orbital angle (fig. 1a) (vs. external orbital angle obtuse in *S. patellifer*, fig. 5a), and the triangular and distally rounded median lobe of

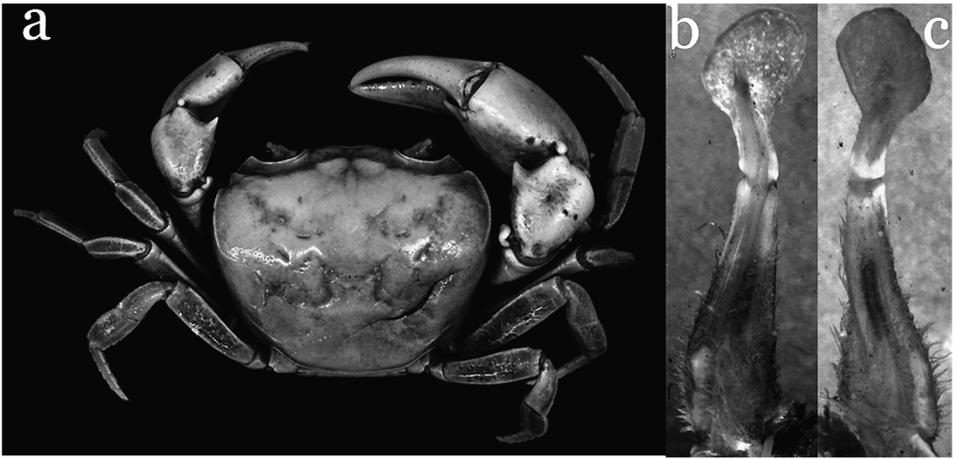


Fig. 5. *Sinolapotamon patellifer* (Wu, 1934). a, habitus; b, right G1, ventral view; c, right G1, dorsal view. Male holotype, 22.3 × 28.0 mm, CB5126.

the posterior margin of the epistome (fig. 1b) (vs. median lobe strongly divergent proximally with a pointed tip in *S. patellifer*).

When Tai (=Dai) & Sung (1975) established the genus *Sinolapotamon* for *Potamon* (*Geothelphusa*) *patellifer*, they examined specimens from Luocheng (probably the type specimens) as well as specimens collected from Hechi, and Linchuan. Dai (1999) further added specimens from Xing'an and Jinxiu. The figures of the G1 provided by Tai & Sung (1975, pl. IV fig. 26) and Dai (1999, fig. 76 (4 & 5)) agree very well with that of holotype (fig. 5b, c). Although Tai & Sung (1975) and Dai (1999) did not mention which specimen was actually drawn, from what we have examined, it was most probably the holotype. Our attempts to locate Tai & Sung's (1975) and Dai's (1999) additional material in the Chinese Academy of Science, Beijing, were unsuccessful. Further studies are necessary to confirm the identification of the other specimens examined by Tai & Sung (1975) and Dai (1999).

***Sinolapotamon palmatum* new species (figs. 6-9)**

Material examined. — Male holotype, 22.1 × 27.8 mm, Litan Village, Baiming Town, Liujiang County, Liujiang City, Guangxi Zhuang Autonomous Region, coll. X. Wei and X. Zhou. Paratypes: 1 female, 21.4 × 25.9 mm, NCU MCP 2009.0006, 1 male, 23.0 × 27.4 mm, 1 female, 30.3 × 37.0 mm, ZRC 2009.0923, 1 male, 22.1 × 26.6 mm, 1 female, 25.9 × 31.8 mm, NMNS, same data as holotype.

Description. — Carapace (fig. 6a) little broader than long, widest across anterior third of carapace, CW 1.19-1.25 times CL (mean 1.22, n = 6); dorsal surface glabrous, convex longitudinally and transversely. Epigastric cristae low, oblique, postorbital cristae and cervical groove indistinct, H-shaped gastric groove

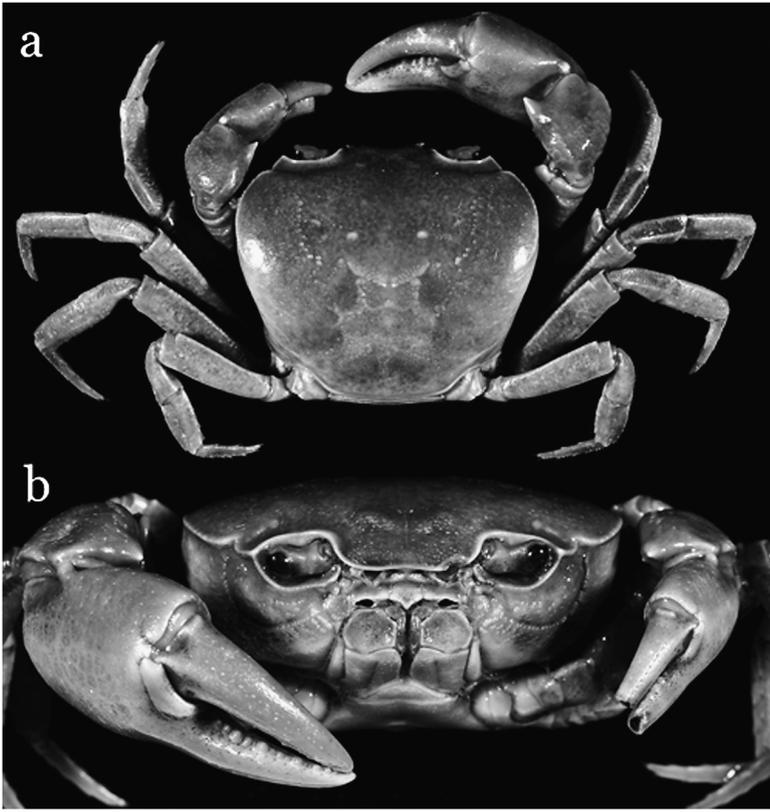


Fig. 6. *Sinolapotamon palmatum* new species. a, habitus; b, cephalothorax, anterior view. Male, 22.1 × 27.8 mm, NCU MCP 2009.0005.

shallow. Front directed antero-ventrally, anterior margin weakly bilobed. Supra- and infraorbital margins (fig. 6b) cristate, infraorbital margin barely granulated, suborbital and pterygostomial regions granulated. External orbital angle distinct, sharp, with obtuse angle, directed anteriorly, outer margin as long as inner margin; epibranchial tooth distinct, rounded, inner margin mesially extending onto dorsal surface of carapace, anterolateral margin convex laterally, cristate, lined with fine granules.

Epistome (fig. 6b) with cristate posterior margin, granulated, medially projected, granules larger around median projection.

Thoracic sternites 2 and 3 demarcated by transverse shallow groove; sternites 3 and 4 demarcated by shallow oblique depressions. Abdominal cavity (fig. 7a) reaching beyond imaginary line joining posterior ends of cheliped coxae, cavity relatively wide, distance between inner ends of sutures between thoracic sternites 4 and 5 less than one-third of distance between sternal condyles; sternal condyle placed on middle of thoracic sternite 5. Vulva (fig. 7b) subcircular in shape.

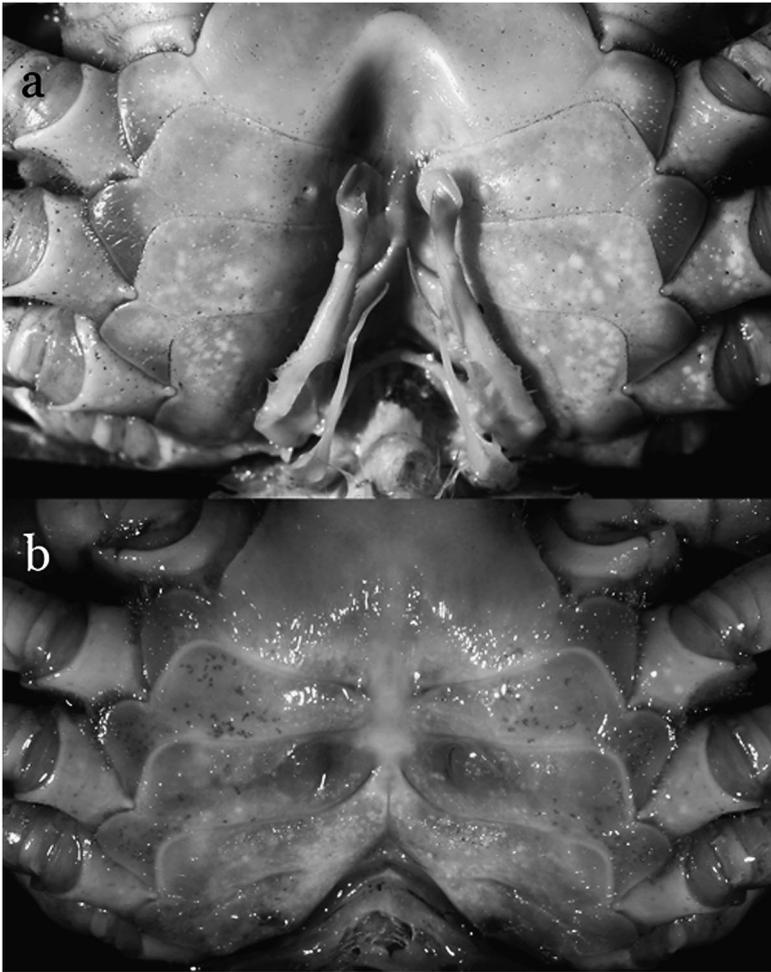


Fig. 7. *Sinolapotamon palmatum* new species. a, male sternum (22.1 × 27.8 mm, NCU MCP 2009.0005); b, female sternum (NCU MCP 2009.0005).

Third maxilliped (fig. 8a) rectangular, midlength of merus about half of ischium, exopod reaching proximal third of outer margin of merus, flagellum present, slightly longer than width of merus.

Chelipeds unequal in male (fig. 6a) major chela larger, relatively longer. Merus of major cheliped with granulated dorsal and ventral margins, granules in ventral margins larger; carpus with strong inner angle, with proximoventral small granule; palm with moderately convex outer surface; fingers as long as palm, gape present when chela closed, cutting edge regularly lined with small and large teeth.

Ambulatory legs (figs. 6a, 8b) relatively short, second leg longest when stretched laterally, combined length of merus to dactylus of second ambulatory legs 1.46-1.52 times CL (mean 1.50, n = 6); anterior margins of meri smooth, with subdistal

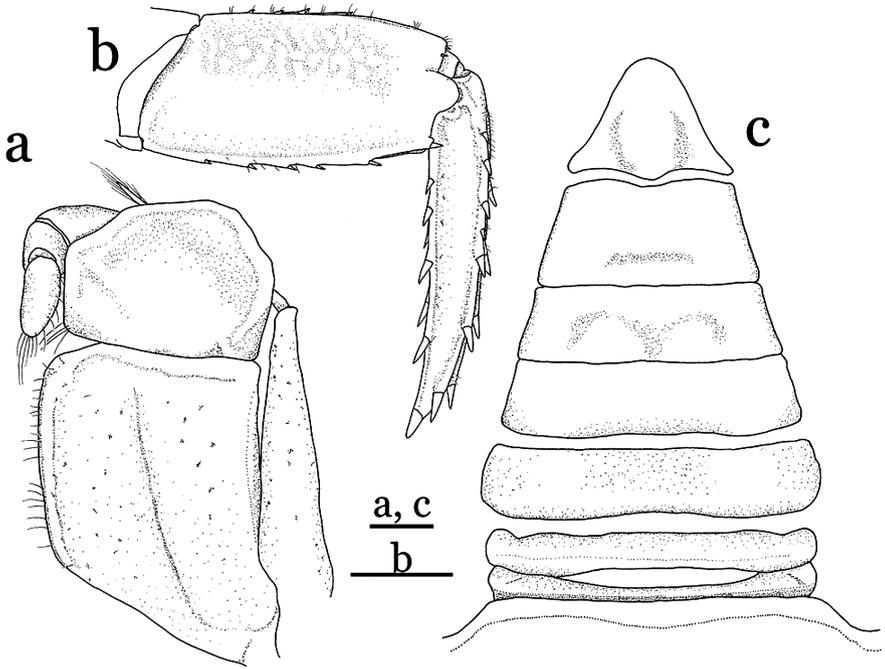


Fig. 8. *Sinolapotamon palmatum* new species. a, left third maxilliped; b, P5R; c, abdomen, telson, and posterior margin of carapace. Male, 22.1 × 27.8 mm, NCU MCP 2009.0005. Scales: a, 1 mm; b, c, 2 mm.

angle, merus of second ambulatory leg 0.51–0.57 times CL (mean 0.55, $n = 6$); carpi and propodi relatively short and stout; dactyli longer than respective propodi, dactyli with 4 rows of small spines, subdistal spine of outer dorsal margin of fourth leg (fig. 8b) stronger than distal spine, placed on the outer dorsal margin.

Male first abdominal somite (fig. 8c) with transverse ridge; third somite widest; telson triangular, with slightly concave lateral margins, width 1.40–1.45 times CL (mean 1.42, $n = 3$), 1.09–1.44 times (mean 1.23, $n = 3$) longer than sixth somite, sixth somite width 1.98–2.67 times (mean 2.29, $n = 3$) length.

G1 (fig. 9a–d) long, distal segment palm-like, longer than half length of subterminal segment, with dorsal lobe and ventral short projection, distal two-fifths of dorsal surface roundly expanded, ventral projection arising from distal two-fifths and reaching distal one-sixth of distal segment, distally terminating in tube-like structure. G2 (fig. 9e) slender, longer than G1.

Etymology. — The species name is from the Latin word “palmatum”, meaning “palmar”, alluding to the shape of the palmar dorsal lobe of the distal segment of the G1. The name is used as an adjective.

Remarks. — *Sinolapotamon palmatum* new species, can easily be differentiated from *S. auriculatum* new species, by characters of the G1. In *S. palmatum*, a ventral

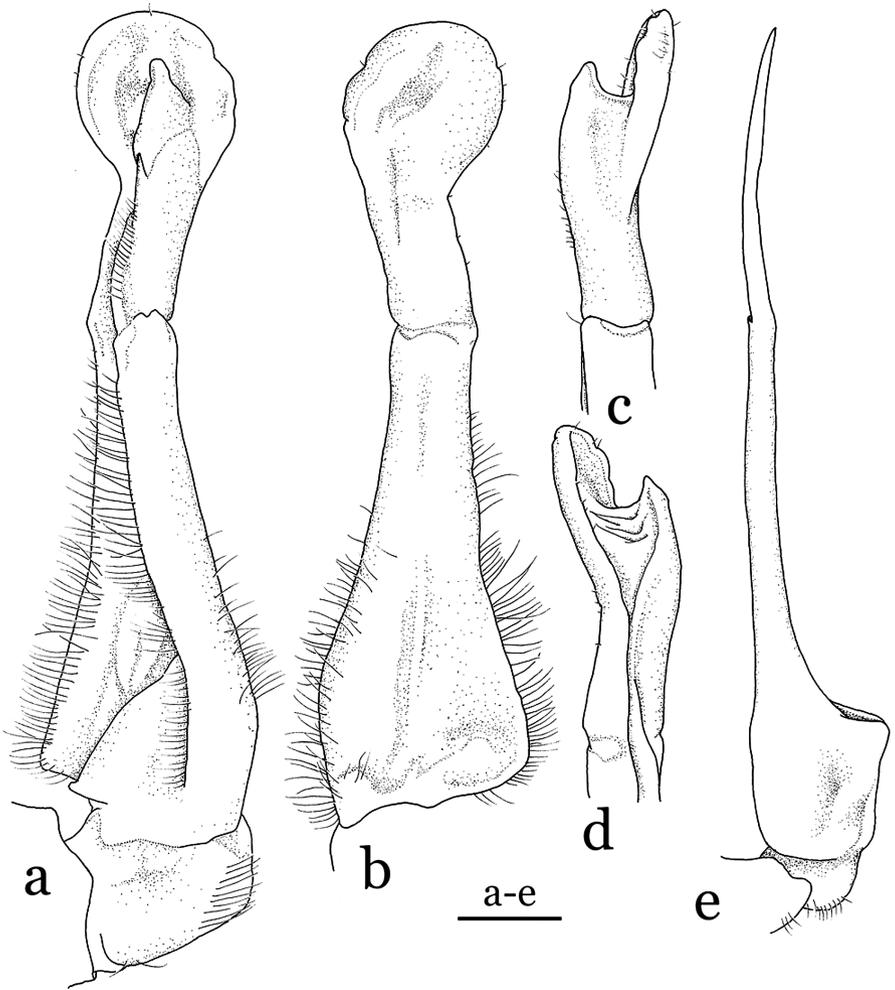


Fig. 9. *Sinolapotamon palmatum* new species. a, left G1, ventral view; b, left G1, dorsal view; c, distal segment of left G1, lateral view; d, distal segment of left G1, mesial view; e, G2. Male, 22.1 × 27.8 mm, NCU MCP 2009.0005. Scale: 1 mm.

projection of the distal segment of the G1 arises from the distal third of the distal segment of the G1, reaching to the distal one-fifth of the dorsal lobe, and the dorsal lobe of the distal segment is roundly expanded on its distal half (fig. 9a–d). In contrast, the ventral projection of *S. auriculatum* arises from the proximal third of the distal segment of the G1, not reaching the proximal half of the dorsal lobe, and the dorsal lobe of the distal segment is elliptically expanded on the distal two-thirds (fig. 4a–d). In addition, *S. palmatum* can be separated from *S. auriculatum* by its rounded epibranchial tooth (fig. 6a) (vs. pointed epibranchial tooth in *S. auriculatum*, fig. 1a).

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