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ORIGINAL ARTICLE

# *Abormon*, a new genus of freshwater crab (Crustacea: Brachyura: Potamidae) from northeastern India, with descriptions of two new species

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## ABSTRACT

A new genus and two new species of potamiscine freshwater crabs (Potamidae) are described from the Abor Hills in the Upper Siang District of Arunachal Pradesh State, northeastern India. *Abormon* gen. nov. is morphologically most similar to *Pararanguna* Dai and Chen, 1985, from Yunnan Province in China but can be differentiated by the setose dorsal surface and the medially concave posterolateral margins of the carapace, the concave lateral margins of the male telson, the relatively low dorsal flap on the terminal segment of the male first gonopod, and the anteriorly open and transversely ovate vulvae. *Abormon capillosum* sp. nov. can be distinguished from *A. praecalvum* sp. nov. by characters of the carapace, pereiopods, male pleonal somite 6, male gonopods, and vulvae.

## KEYWORDS

Abor Hills, Arunachal Pradesh, Decapoda, Potamiscinae, taxonomy

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## Introduction

The diversity of potamid freshwater crabs in the northeastern region of India (Arunachal Pradesh, Assam, Manipur, Meghalaya, Mizoram, Nagaland, Sikkim, and Tripura states) is very high and includes all known potamid genera (12 genera) and 29 of the 38 species now known from the country (Wood-Mason, 1871; 1875; 1876; Henderson, 1893; Rathbun, 1904; 1905; Alcock, 1909; 1910; Kemp, 1913; Bott, 1966; 1970; Dutta, 1983; Ghosh and Ghatak, 1999; 2000; Brandis, 2000; Roy *et al.*, 2003; 2004; Ghosh *et al.*, 2006; Yeo and Ng, 2007; Takeda *et al.*, 2012; Absar *et al.*, 2017; Mitra, 2017; Mitra *et al.*, 2018; 2020; Pati and Thackeray, 2018; Shaw *et al.*, 2018; Mitra and Waikhom, 2019; Pati *et al.*, 2019; 2020a; 2020b). Of these, three genera and 23 species (nearly 61 % of India's potamid fauna) are endemic to this area (Absar *et al.*, 2017; Mitra, 2017; Mitra *et al.*, 2018; 2020; Pati and Thackeray, 2018; Mitra and Waikhom, 2019; Pati *et al.*, 2019; 2020a; 2020b).

Many areas of northeastern India, however, remain poorly explored for freshwater crabs, and recent studies have substantially increased the number of known taxa (Absar *et al.*, 2017; Mitra, 2017; 2020; Mitra *et al.*, 2018; Mitra and Waikhom, 2019; Pati *et al.*, 2019; 2020a; 2020b). Despite this, more new taxa await description as many remote localities remain unsurveyed.

The present study reports on a new genus with two new species, that were collected from the Abor Hills in the Upper Siang District of Arunachal Pradesh State, northeastern India. With the present descriptions of the new genus and two new species, Arunachal Pradesh now has 13 species in 10 genera of potamid crabs, and four species and four genera of gecarcinucid crabs (*cf.* Mitra *et al.*, 2018; Pati and Thackeray, 2018; Pati *et al.*, 2019; Mitra, 2020).

## Material and Methods

The material examined is in the following collections: Crustacea Section, Zoological Survey of India, Kolkata, India (ZSIK); Zoological Survey of India, Western Regional Centre, Pune, India (ZSI-WRC); Institute of Zoology, Chinese Academy of Sciences, Beijing, China (IZCAS); and Zoological Reference Collection, Lee Kong Chian Natural History Museum (previously Raffles Museum of Biodiversity Research), National University of Singapore, Singapore (ZRC).

The measurements of carapace (in mm) were taken by following Ng (1988). The terminology is after Ng (1988), with changes as recommended by Guinot *et al.* (2013) and Davie *et al.* (2015). The abbreviations used are as follows: CW, carapace width; CL, carapace length; CH, carapace height; FW, frontal width; a.s.l., above sea level; coll., collected by; P2–P5, pereiopods 2 to 5, respectively; S1–S8, thoracic sternites 1 to 8, respectively; G1, male first gonopod; G2, male second gonopod; VD, closest distance between female vulvae; SW, maximum width of sternum. The sutures separating the thoracic sternites are denoted by a "/", *e.g.*, the suture between thoracic sternites 2 and 3 is indicated as "S2/S3".

## Systematics

**Superfamily Potamoidea Ortmann, 1896**

**Family Potamidae Ortmann, 1896**

**Subfamily Potamiscinae Bott, 1970**
(sensu Yeo and Ng, 2004)

***Abormon* gen. nov.**

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*Type species*. *Abormon praecalvum* sp. nov., by present designation.

*Diagnosis*. Small adult size (adult CW < 15 mm); carapace transversely ovate, low to moderately deep (CH/CW = 0.4–0.5); dorsal surface gently convex in frontal view, rugose, punctate, sparsely to densely setose; anterolateral margins gently convex, cristate with low granules; posterolateral margins concave medially; front sloping downwards; frontal margin concave medially, broad (FW/CW = 0.35); epigastric cristae very low, visible as 2 broad protuberances; postorbital cristae indiscernible; external orbital angle triangular, with long outer margin, approximately 2.0–2.5 times length of inner margin; epibranchial tooth very low, with very small cleft; cervical grooves

barely visible; supraorbital margin gently concave medially; suborbital margin concave, confluent with supraorbital margin (Figs. 1A, B, 2A, 4A, 5A, B, 6A, 8A, B, 9A). Third maxilliped exopod without flagellum (Figs. 2B, 6B). Chelipeds sparsely to densely setose; major chela with narrowly or broadly triangular inner distal major tooth on carpus (Figs. 1A, B, 2C, 4A, 5A, 6C, 8A, 9A). Ambulatory legs sparsely to densely setose, short, relatively stout, longest merus (P3) approximately 0.5 times CW (Figs. 1A–C, 4A, 5A, C, 6C, 8A, 9A). Male S2/S3 deep, reaching lateral margins; S3/S4 visible as shallow, broad groove, running from edge of sternopleonal cavity to lateral margins (Figs. 1C, 2D, 5C, 6D). Male sternopleonal cavity long, almost reaching to imaginary line joining anterior part of cheliped coxae (Figs. 1C, 2D, 5C, 6D). Male pleon broad, triangular; pleonal somite 6 trapezoidal, broader than long, distinctly shorter than telson (Figs. 1C, 2E, 5C, 6E). Male telson tongue-shaped, with concave lateral margins (Figs. 1C, 2E, 5C, 6E). G1 slender to stout, distinctly sinuous, tip blunt tapering, reaching up to S4/S5 *in situ*; flexible zone large; terminal segment curved outwards (at angle approximately 10°–30° from longitudinal axis), stout, conical, long, approximately 0.5–0.6 times combined length of flexible zone and subterminal segment, dorsal flap relatively low, broadly rounded, medially located, not reaching proximal end; subterminal segment gently to distinctly sinuous; groove for G2 median (Figs. 2D, 3A–C, 6D, 7A–C). G2 longer than G1, approximately 1.1–1.2 times G1 length; distal segment relatively long, approximately 0.5 times length of basal segment (Figs. 3D, 7D). Vulvae on S6, open anteriorly, transversely ovate, relatively small, occupying approximately 0.5 times length of S6, anterior margin touching S5/S6; sternal vulvar cover posterior in position, low or not visible (Figs. 4C, 8D).

*Etymology*. The genus name is derived from the Abor Hills, a region of Arunachal Pradesh in the northeast India where the crabs reside, in arbitrary combination with the ending of "*Potamon*". The gender is neuter.

*Comparative material*. *Pararanguna hemicyclia* Naruse, Chia and Zhou, 2018: paratype male (14.0 × 11.9 mm), Dashan Village, Xueshan Town, Fengqing County, Yunnan Province, China (approximately 24.466°N 99.780°E), 1 February 2004, coll. Yang Zheng Bing (ZRC 2013.0559). *Pararanguna semilunata* (Dai and Chen, 1985): holotype male, Xi Yi Village, Baoshan, Yunnan Province, China (approximately 24.928°N 99.323°E), 13 October 1981, coll. A.Y. Dai and G.X. Chen (IZCAS CB05191); paratype female, same data as holotype (IZCAS CB05191); paratype male (21.8 × 17.3 mm), paratype female (20.2 × 16.6 mm), same data as holotype (ZRC 2020.0085). *Potamiscus annandali* (Alcock, 1909): lectotype male (33.0 × 25.0 mm), Nemotha, Cachar District, Assam, India (approximately 25.029°N 92.948°E), collection date unknown, coll. J. Wood-Mason (ZSIK 6602-3/9). *Quadramon aborense* (Kemp, 1913): syntype male (18.2 × 14.8 mm), road between Rotung and Sireng Stream, East Siang District, Arunachal Pradesh, India (approximately 28.152°N 95.190°E), collection date unknown, coll. S. Kemp (ZSIK 8011/10).

*Remarks*. *Abormon* gen. nov. is clearly a potamiscine, lacking a transverse ridge on S7/S8 (Figs. 2D, 6D) (*cf.* Yeo and Ng, 2004). The complete absence of a flagellum on the exopod of the third maxilliped is one of the key characters in *Abormon* gen. nov. (Figs. 2B, 6B). Among potamiscine genera that also lack a flagellum, *Abormon* gen. nov. is most similar to *Pararanguna* Dai and Chen, 1985 [with two species: *Pa. hemicyclia* Naruse, Chia and Zhou, 2018, and *Pa. semilunata* (Dai and Chen, 1985) (type species); from Yunnan Province, China (*cf.* Dai, 1999; Naruse *et al.*, 2018)] due to the relatively small adult size (CW < 22 mm), relatively high carapace with a gently convex dorsal surface (Figs. 1B, 5B, 8B; see Naruse *et al.*, 2018: fig. 20B), very low epigastric cristae and indistinct to weakly developed postorbital cristae (Figs. 1A, 2A, 4A, 5A, 6B, 8A, 9A; see Dai, 1999: pl. 25, fig. 1; Naruse *et al.*, 2018: figs. 19A, 20A), relatively slender G1 with a blunt tip, and stout, relatively long G1 terminal segment with a distinct dorsal flap (Figs. 3A–C, 7A–C; see Dai, 1999: fig. 200 (4, 5); Naruse *et al.*, 2018: figs. 19E, 22A, B) (*cf.* Naruse *et al.*, 2018).

*Abormon* gen. nov. can nevertheless be separated from *Pararanguna* by its sparsely to densely setose dorsal surface of the carapace (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* glabrous dorsal carapace surface; see Dai, 1999: pl. 25, fig. 1; Naruse *et al.*, 2018: figs. 19A,

20A); the medially concave posterolateral margins of the carapace (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs*. medially almost straight posterolateral margins of the carapace; see Dai, 1999: pl. 25, fig. 1; Naruse *et al*., 2018: figs. 19A, 20A); the concave lateral margins of the male telson (Figs. 1C, 2E, 5C, 6E) (*vs*. almost straight lateral margins of the male telson; see Dai, 1999: fig. 200 (2); Naruse *et al*., 2018: fig. 21);

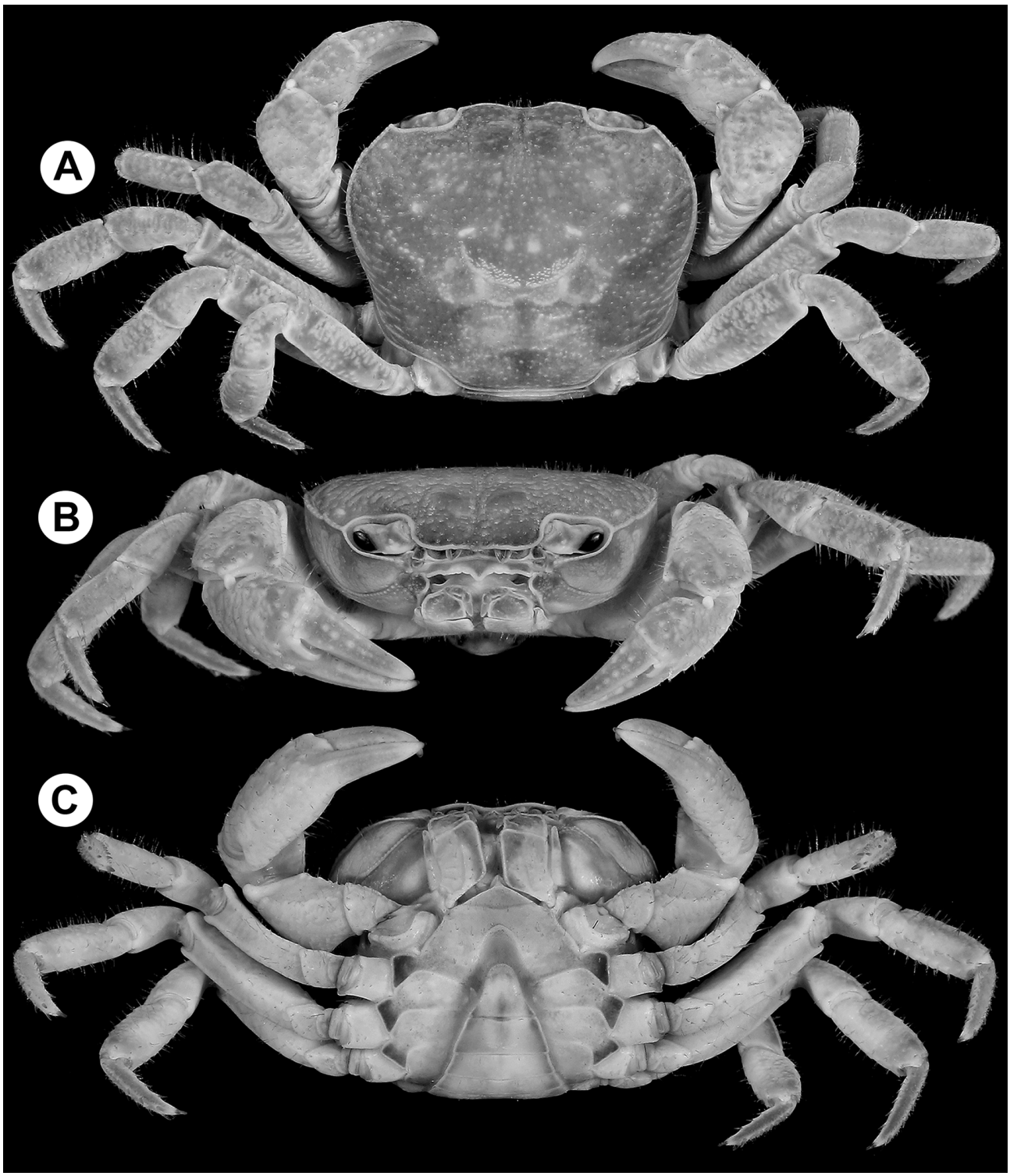


**Figure 1.** *Abormon praecalvum* sp. nov., holotype male (12.9 × 10.5 mm) (ZSI-WRC C.1941). **A**, overall dorsal view; **B**, overall frontal view; **C**, overall ventral view.

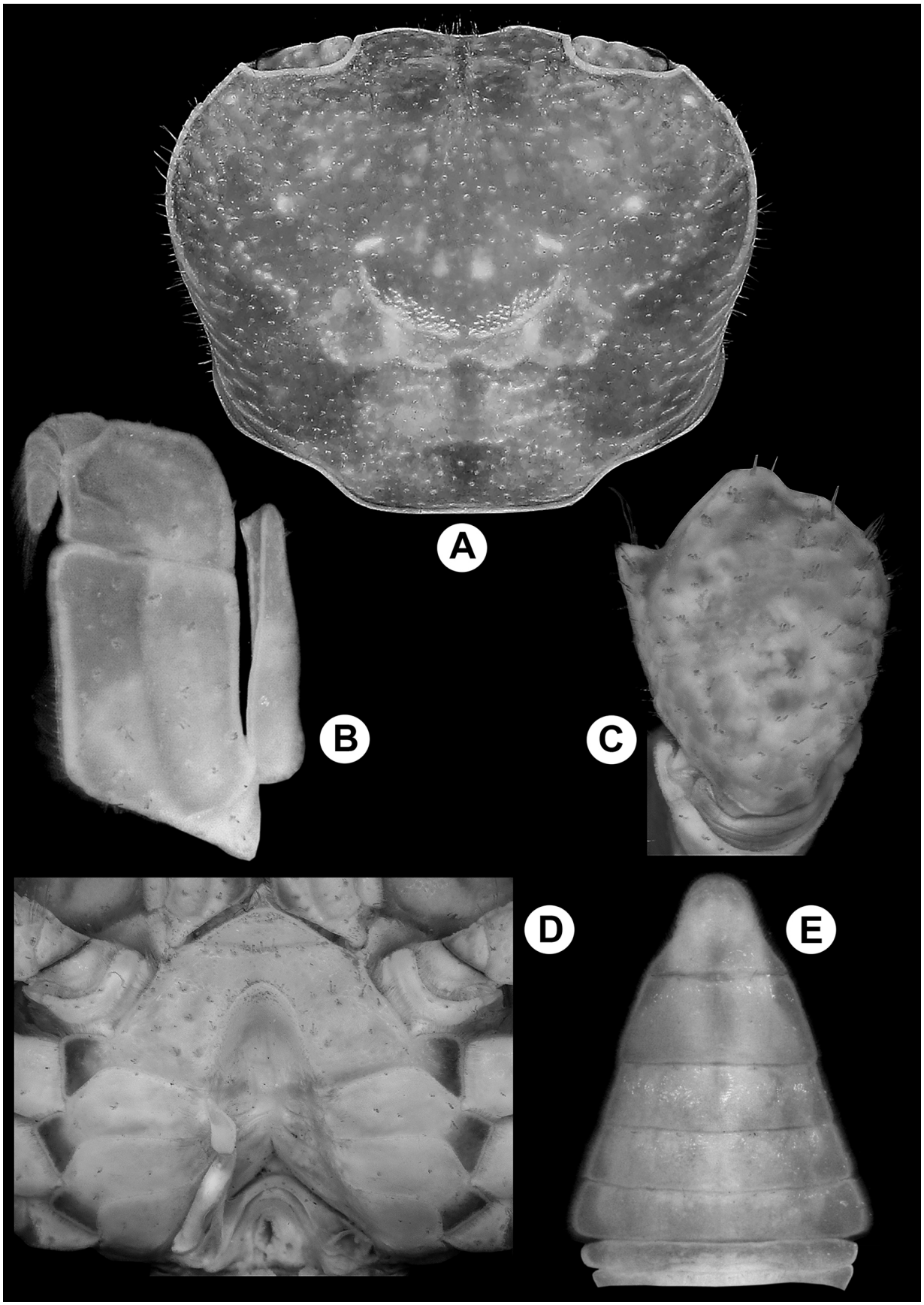


**Figure 2.** *Abormon praecalvum* sp. nov., holotype male (12.9 × 10.5 mm) (ZSI-WRC C.1941). **A**, dorsal view of carapace; **B**, left third maxilliped; **C**, carpus of right cheliped; **D**, thoracic sternites with G1 *in situ* (left G1 removed); **E**, pleon and telson.

the relatively low dorsal flap on the G1 terminal segment (Figs. 3A, B, 7A, B) (*vs.* relatively high dorsal flap on the G1 terminal segment; see Dai, 1999: fig. 200 (4, 5); Naruse *et al.*, 2018: fig. 22B); and the anteriorly open and transversely ovate vulvae (Figs. 4C, 8D) (*vs.* the laterally open and orbicular vulvae; see Dai, 1999: fig. 200 (8); Naruse *et al.*, 2018: fig. 23). We have examined the types of both *Pararanguna* species (see comparative material examined), and the above characters are consistent. Geographically, *Abormon* gen. nov. is also some 600 km apart from the known range of *Pararanguna* in Yunnan.

*Abormon* gen. nov. also has similarities with *Potamiscus* Alcock, 1909 [type species *Po. annandali* (Alcock, 1909)] [currently with 19 species: 11 from Yunnan Province, China; two from Myanmar, and six from northeastern India (see Ng *et al.*, 2020; Pati *et al.*, 2020a)]. *Potamiscus*, however, is clearly polyphyletic (see Shih *et al.*, 2009; Chu *et al.*, 2017; Zhang *et al.*, 2020), with several groups, characterised by different carapaces, ambulatory legs, male pleons, male telsons, male gonopods, and female vulvae (see Ng *et al.*, 2020; Pati *et al.*, 2020a), but all are characterised by the exopod of the third maxilliped possessing at most a short flagellum. *Abormon* gen. nov. can be differentiated from *Potamiscus s. str.* (*i.e.*, based on the type species) by the sparsely to densely setose dorsal surface of the carapace (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* glabrous dorsal surface of the carapace; see Yeo and Ng, 2007: fig. 11A); the medially concave posterolateral margins of the carapace (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* medially almost straight posterolateral margins of the carapace; see Yeo and Ng, 2007: fig. 11A); the very low epigastric cristae and the indiscernible postorbital cristae (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* well-developed epigastric and postorbital cristae, with the latter reaching the epibranchial tooth; see Yeo and Ng, 2007: fig. 11A); the relatively long outer margin of the external orbital angle, approximately 2.0–2.5 times the length of the inner margin (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* relatively short outer margin of the external orbital angle, approximately 1.5 times the length of the inner margin; see Yeo and Ng, 2007: fig. 11A); a very small cleft between the external orbital angle and epibranchial tooth (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* prominent cleft between the external orbital angle and epibranchial tooth; see Yeo and Ng, 2007: fig. 11A); the relatively long male sternopleonal cavity, almost reaching to the imaginary line joining the anterior part of the cheliped coxae (Figs. 1C, 2D, 5C, 6D) (*vs.* relatively short male sternopleonal cavity, reaching to the imaginary line joining the medial part of the cheliped coxae; see Bott, 1970: pl. 46, fig. 26); the tongue-shaped male telson, with the concave lateral margins (Figs. 1C, 2E, 5C, 6E) (*vs.* triangular male telson, with almost straight lateral margins; see Bott, 1970: pl. 46, fig. 26); the relatively longer G1 with the tip reaching up to S4/S5 *in situ* (Figs. 2D, 6D) (*vs.* relatively shorter G1 with the tip reaching slightly beyond S5/S6 up to the proximal third of S5 *in situ*; unpublished data); the less strongly curved G1 terminal segment forming an angle of about 10°–30° from the longitudinal axis (Figs. 3A, 7A) (*vs.* more strongly curved G1 terminal segment forming an angle of about 50° from the longitudinal axis; see Bott, 1970: pl. 38, fig. 28); the relatively stout and elongated G1 terminal segment (approximately 0.5–0.6 times the combined length of the flexible zone and subterminal segment) (Figs. 3A–C, 7A–C) (*vs.* relatively slender and short G1 terminal segment, approximately 0.2 times the combined length of the flexible zone and subterminal segment; see Bott, 1970: pl. 38, fig. 28); the distinct dorsal flap on the G1 terminal segment (Figs. 3A, B, 7A, B) (*vs.* absence of the dorsal flap on the G1 terminal segment; see Bott, 1970: pl. 38, fig. 28); and the gently to distinctly sinuous G1 subterminal segment (Figs. 3A, C, 7A, C) (*vs.* almost straight G1 subterminal segment; see Bott, 1970: pl. 38, fig. 28).

Some Chinese species of *Potamiscus s. lat.* [*Po. crassus* Naruse, Chia and Zhou, 2018, *Po. elaphrius* Dai, Chen, Liu, Luo, Yi, Liu, Gu and Liu, 1990, *Po. fumariatus* Naruse, Chia and Zhou, 2018, *Po. loshingensis* (Wu, 1934), *Po. motuoensis* Dai, 1990, *Po. rongjingensis* Dai, Chen, Liu, Luo, Yi, Liu, Gu and Liu, 1990, *Po. yongshengensis* Dai and Chen, 1985, and *Po. yunnanensis* (Kemp, 1923)] possess a stout and an elongated G1 terminal segment, and a long G2 distal segment, like those of *Abormon* gen. nov. (Figs. 3A, D, 7A, D; see also Dai, 1999: figs. 101 (4, 6), 102 (4, 6), 103 (5, 7), 104 (4, 6), 105 (4, 6), 106 (5, 7); Naruse *et al.*, 2018: figs. 19G, H, 30C, E, 33D, E). *Abormon* gen. nov., however, can easily be distinguished from them in possessing indistinct postorbital cristae (Figs. 1A,

2A, 4A, 5A, 6A, 8A, 9A) (*vs.* relatively well-developed postorbital cristae; see Dai, 1999: pl. 12, figs. 4–8, pl. 13, fig. 1; Naruse *et al.*, 2018: figs. 19C, D, 28A, 31A); a relatively broader male pleon (Figs. 2E, 6E) (*vs.* relatively narrow male pleon except for *Po. fumariatus*; see Dai, 1999: figs. 101 (2), 102 (2), 103 (3), 104 (2), 105 (2), 106 (3); Naruse *et al.*, 2018: figs. 29A, 32A); and the presence of a distinct dorsal flap on the G1 terminal segment (Figs. 3A, B, 7A, B) (*vs.* no dorsal flap present on the G1 terminal segment except for *Po. crassus*; see Dai, 1999: figs. 101 (4), 102 (4), 103 (5), 104 (4), 105 (4), 106 (5); Naruse *et al.*, 2018: figs. 19G, H, 30C, 33D). In addition, the G1 terminal segment is conical in *Abormon* gen. nov. (Figs. 3A, B, 7A, B) but cylindrical in *Po. elaphrius*, *Po. loshingensis*, *Po. motuoensis*, and *Po. rongjingensis* (see Dai, 1999: figs. 101 (4), 103 (5), 105 (4), 106 (5); Naruse *et al.*, 2018: fig. 19G). *Potamiscus fumariatus* has a relatively broader male pleon (Figs. 2E, 6E; see Naruse *et al.*, 2018: fig. 29A), but *Abormon* gen. nov. can be separated by its more setose carapace and pereiopods (Figs. 1A–C, 2A, 4A, 5A–C, 6A, 8A, B, 9A) (*vs.* completely glabrous carapace and pereiopods; see Naruse *et al.*, 2018: fig. 28A); the presence of only a very small cleft between the external orbital angle and epibranchial tooth (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* distinct cleft between the external orbital angle and epibranchial tooth; see Naruse *et al.*, 2018: fig. 28A); and the relatively slender and conical G1 terminal segment with a blunt tapering tip (Figs. 3A–C, 7A–C) (*vs.* relatively stout and columnar G1 terminal segment, with a broadly flattened truncate tip; see Naruse *et al.*, 2018: fig. 30A–D).

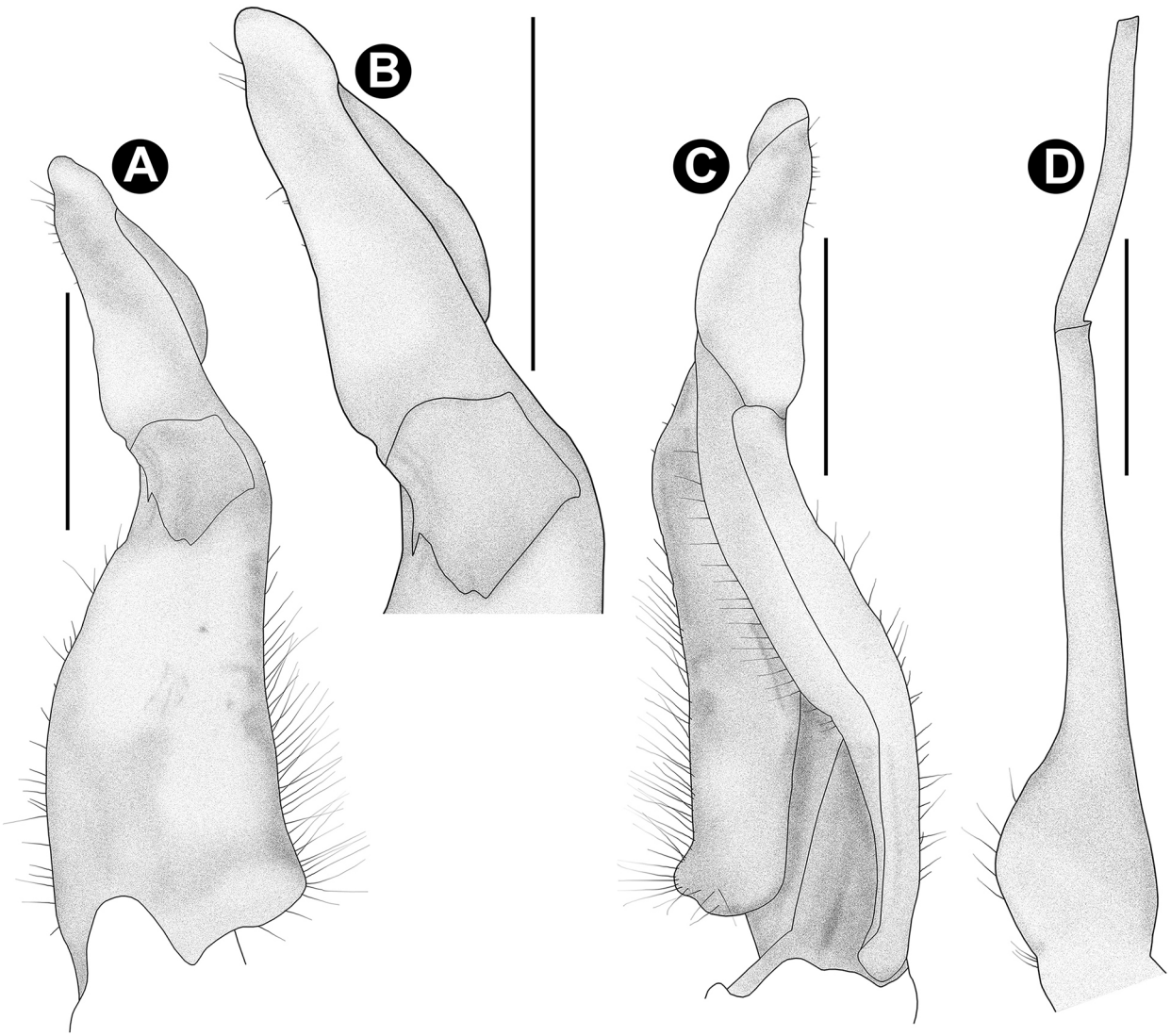


**Figure 3.** *Abormon praecalvum* sp. nov., holotype male (12.9 × 10.5 mm) (ZSI-WRC C.1941). **A**, dorsal view of left G1; **B**, dorsal view of left G1 terminal segment; **C**, ventral view of left G1; **D**, left G2. Scale bar = 1 mm.

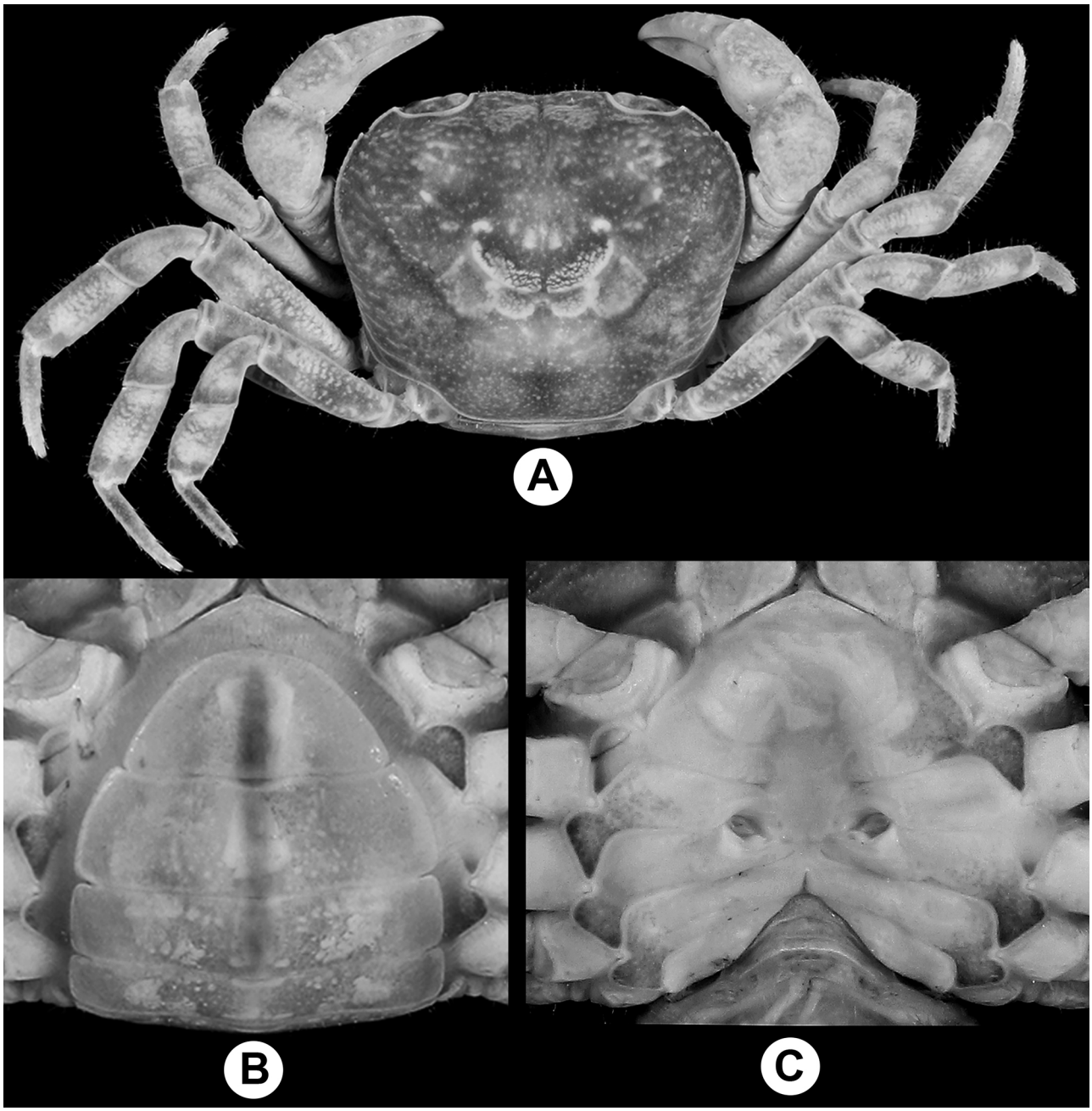


**Figure 4.** *Abormon praecalvum* sp. nov., paratype female (14.5 × 11.5 mm) (ZSI-WRC C.1942). **A**, overall dorsal view; **B**, pleonal somites 4–6 and telson; **C**, thoracic sternites showing vulvae.

Although both *Abormon* gen. nov. and *Po. crassus* have a distinct dorsal flap on the G1 terminal segment (Figs. 3A, B, 7A, B; see Naruse *et al.*, 2018: fig. 33C, D), the two species in the new genus have a more setose carapace and pereiopods (Figs. 1A–C, 2A, 4A, 5A–C, 6A, 8A, B, 9A); the cleft between the external orbital angle and epibranchial tooth is very small (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A); the male S3/S4 is relatively more shallow (Figs. 1C, 2D, 5C, 6D); the male telson is relatively broader (Figs. 1C, 2E, 5C, 6E); and the G1 is proportionately more slender (Figs. 3A, C, 7A, C). In contrast, *Po. crassus* has a completely glabrous carapace and pereiopods (see Naruse *et al.*, 2018: fig. 31A); the external orbital angle and epibranchial tooth are separated by a prominent cleft (see Naruse *et al.*, 2018: fig. 31A); the male S3/S4 is deeper (see Naruse *et al.*, 2018: fig. 32A); the male telson is relatively narrower (see Naruse *et al.*, 2018: fig. 32A); and the G1 is very stout (see Naruse *et al.*, 2018: fig. 33D).

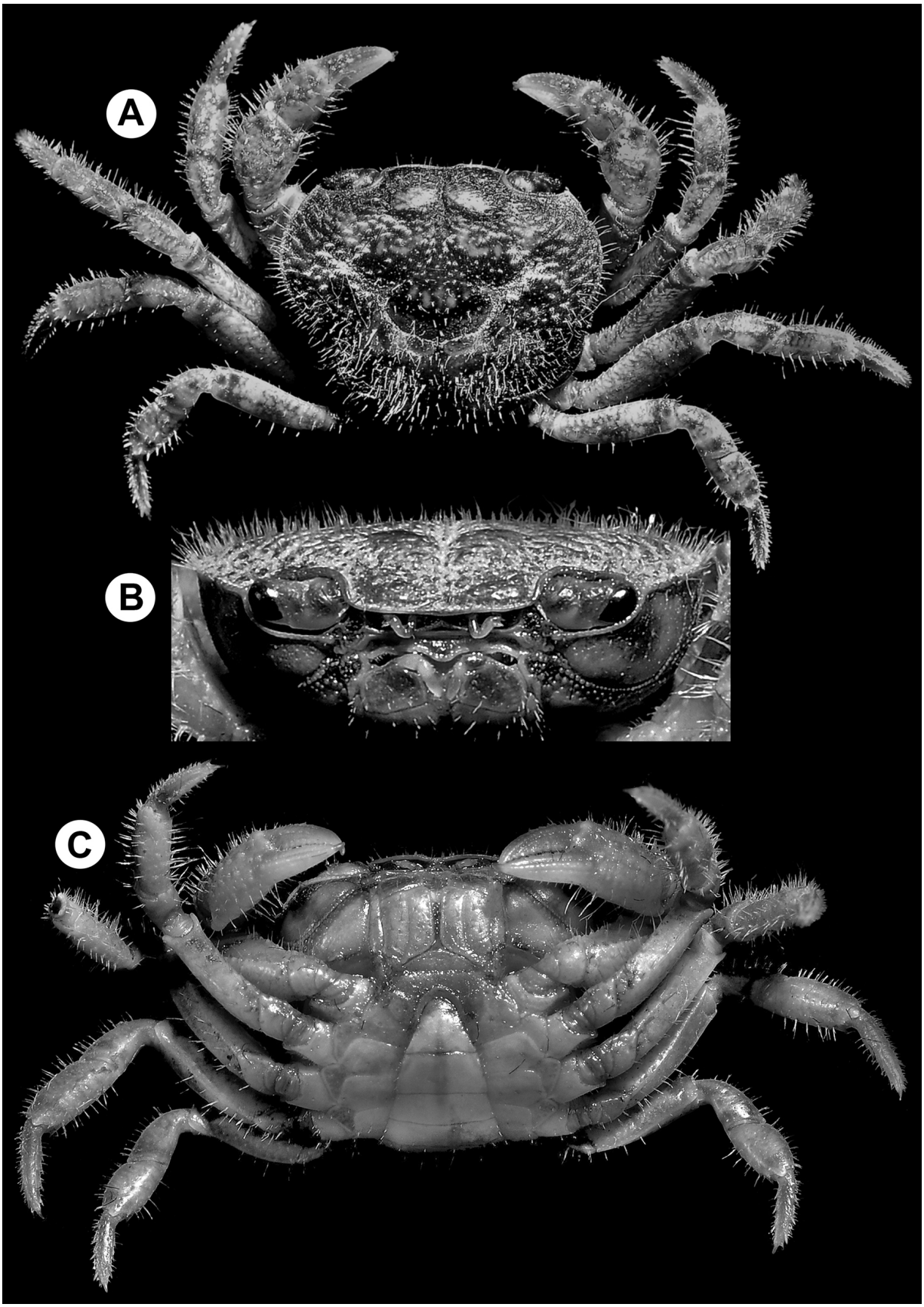


**Figure 5.** *Abormon capillosum* sp. nov., holotype male (10.2 × 8.5 mm) (ZSIK C.8610/2). **A**, overall dorsal view; **B**, frontal view of cephalothorax; **C**, overall ventral view.

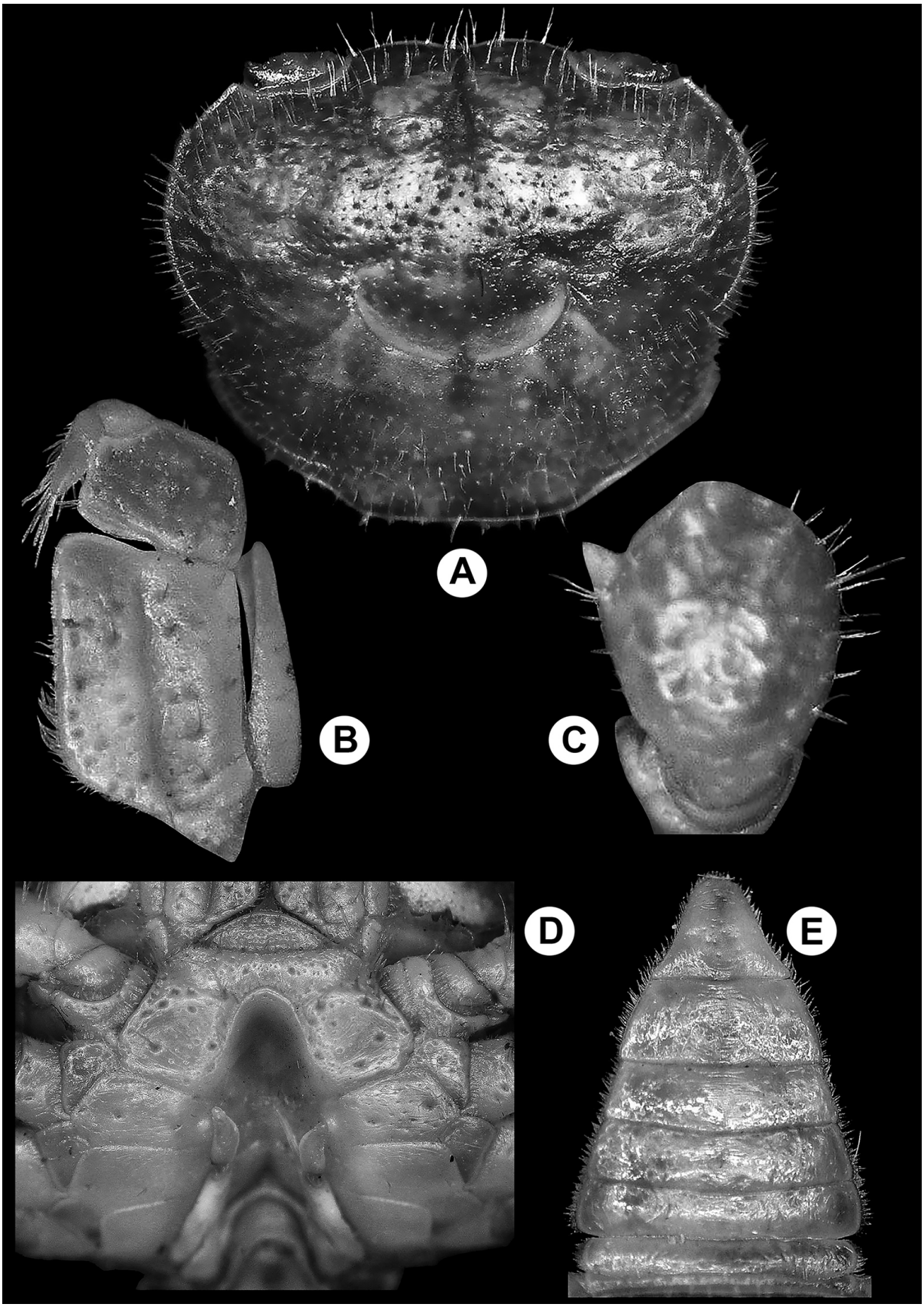


**Figure 6.** *Abormon capillosum* sp. nov., paratype male (12.2 × 10.1 mm) (ZSIK C.8611/2). **A**, dorsal view of carapace; **B**, left third maxilliped; **C**, carpus of right cheliped; **D**, thoracic sternites with G1 *in situ*; **E**, pleon and telson.

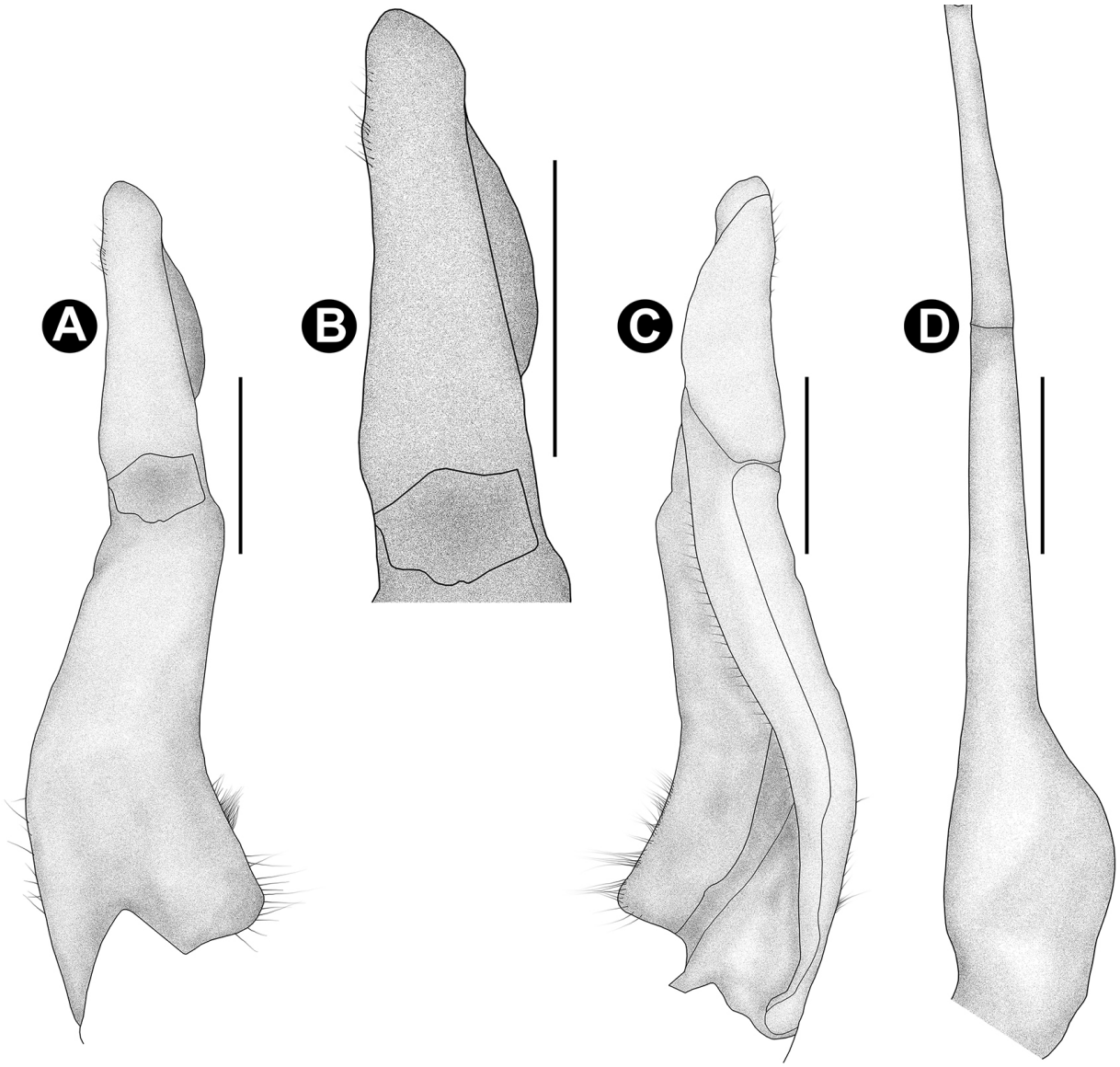


**Figure 7.** *Abormon capillosum* sp. nov., holotype male (10.2 × 8.5 mm) (ZSIK C.8610/2). **A**, dorsal view of left G1; **B**, dorsal view of left G1 terminal segment; **C**, ventral view of left G1; **D**, left G2. Scale bar = 1 mm.

Two other potamiscine genera also lack a flagellum or only have a short one on the third maxilliped exopod: *Quadramon* Yeo and Ng, 2007 [with three known species; type *Potamon* (*Potamiscus*) *aborense* Kemp, 1913] and *Trichopotamon* Dai and Chen, 1985 (with three species; type *Trichopotamon daliense* Dai and Chen, 1985). These genera each include one Indian species, *Q. aborense* (Kemp, 1913) and *T. sikkimense* (Rathbun, 1905) (see Pati and Thackeray, 2018). *Abormon* gen. nov. is differentiated from *Quadramon* mainly by the setose dorsal surface of the carapace (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* glabrous dorsal surface of the carapace; see de Man, 1898: pl. 5, fig. 9; Kemp, 1913: pl. 18, fig. 9; Yeo and Ng, 2007: fig. 10A); the indiscernible postorbital cristae (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* relatively well-developed postorbital cristae; see de Man, 1898: pl. 5, fig. 9; Kemp, 1913: pl. 18, fig. 9; Yeo and Ng, 2007: fig. 10A); the relatively broad external orbital angle (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* relatively acutely triangular external orbital angle; see de Man, 1898: pl. 5, fig. 9; Kemp, 1913: pl. 18, fig. 9; Yeo and Ng, 2007: fig. 10A); and the very small cleft between the external orbital angle and epibranchial tooth (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* distinct cleft between the external orbital angle and epibranchial tooth; see de Man, 1898:

pl. 5, fig. 9; Kemp, 1913: pl. 18, fig. 9; Yeo and Ng, 2007: fig. 10A). Of the three species of *Quadramon*, the G1 structure is known only in the type species, *Q. aborense*; the two other species [*Q. mooleyitense* (Rathbun, 1904) and *Q. obliteratum* (Kemp, 1913)] are known only from female holotypes. In the G1 structure, *Abormon* gen. nov. is distinguished from *Q. aborense* by the blunt tip and the distinct dorsal flap of the terminal segment (Figs. 3A–C, 7A–C) (*vs.* G1 terminal segment with an acute tip and lacks a dorsal flap; see Yeo and Ng, 2007: fig. 10D). *Trichopotamon* is problematic as the identity and generic position of one of its supposed constituent species, *T. sikkimense* [described as *Potamon* (*Geothelphusa*) *sikkimensis* Rathbun, 1905], is unclear. The species was referred to *Potamiscus* by Kemp (1913) and Bott (1970), with Ng *et al.* (2008) including it in *Trichopotamon* without explanation. The problem with this species is that the holotype is a female deposited in the Muséum national d'Histoire naturelle, Paris (MNHN), and Bott (1970: 159) synonymized it with *Po. tumidulus* (Alcock, 1909) without comment. The figure of *Po. sikkimensis* (Rathbun, 1905) in Bott (1970: pl. 38, fig. 31, pl. 51, fig. 51) is the lectotype male (ZSIK 5507/10) of *Po. tumidulus* (Alcock, 1909). Bott (1970) had incorrectly synonymised several species under *Po. sikkimensis* but most were treated as valid species in different genera by Yeo and Ng (2007). *Potamiscus sikkimensis s. str.* and *Po. tumidulus*, however, are clearly distinct from each other and actually do not possess the non-sexual diagnostic character states of *Potamiscus s. str.* (Darren C.J. Yeo, unpublished data). The record of "*Trichopotamon sikkimensis*" from Nepal by Takeda and Sugiyama (2015) will also need to be re-examined to ascertain its identity. In any case, the female holotype of *T. sikkimense* (MNHN-IU-2014-23050) has a glabrous dorsal surface of the carapace, the relatively well-developed postorbital cristae, an indistinct external orbital angle, and the laterally open vulva, which does not touch S5/S6 (see https://science.mnhn.fr/institution/mnhn/collection/iu/item/2014-23050), whereas *Abormon* gen. nov. has a more setose carapace (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A); the postorbital cristae are almost indiscernible (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A); the external orbital angle is distinct (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A); and the anteriorly open vulva touches S5/S6 (Figs. 4C, 8D). While the male diagnostic features are unknown in *T. sikkimense*, its indistinct external orbital angle is exceptional among congeners. This casts serious doubt about placing this species in *Trichopotamon* as well. *Abormon* gen. nov. can be easily separated from *Trichopotamon s. str.* (represented by *T. daliense* and *Trichopotamon xiangyunense* Naruse, Yeo and Zhou, 2008) by the more setose carapace and pereiopods (Figs. 1A–C, 2A, 4A, 5A–C, 6A, 8A, B, 9A) (*vs.* completely glabrous carapace and pereiopods; see Dai, 1999: pl. 24, fig. 5; Naruse *et al.*, 2008: fig. 13a); the medially concave posterolateral margins of the carapace (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* medially almost straight posterolateral margins of the carapace; see Dai, 1999: pl. 24, fig. 5; Naruse *et al.*, 2008: fig. 13a); the indiscernible postorbital cristae (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* relatively distinct postorbital cristae; see Dai, 1999: pl. 24, fig. 5; Naruse *et al.*, 2008: fig. 13a); a very small cleft between the external orbital angle and epibranchial tooth (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* distinct cleft between the external orbital angle and epibranchial tooth; see Dai, 1999: pl. 24, fig. 5; Naruse *et al.*, 2008: fig. 13a); the barely visible cervical grooves (Figs. 1A, 2A, 4A, 5A, 6A, 8A, 9A) (*vs.* distinct cervical grooves; see Dai, 1999: pl. 24, fig. 5; Naruse *et al.*, 2008: fig. 13a); the tongue-shaped male telson, with the concave lateral margins (Figs. 1C, 2E, 5C, 6E) (*vs.* triangular male telson, with almost straight lateral margins; see Dai, 1999: fig. 198 (2); Naruse *et al.*, 2008: fig. 13); and the relatively less stout G1, with a distinct dorsal flap on the terminal segment (Figs. 3A–C, 7A–C) (*vs.* relatively more stout G1, with the terminal segment lacking a dorsal flap; see Dai, 1999: fig. 198 (4, 5); Naruse *et al.*, 2008: fig. 15a, b).

*Geographical distribution*. *Abormon* gen. nov. is only known from the Abor Hills in the Upper Siang District of Arunachal Pradesh State, northeastern India.

### ***Abormon praecalvum* sp. nov.**

(Figs. 1–4)

Zoobank: urn:lsid:zoobank.org:act:4A065E0E-059B-4E3F-A9D0-941976C53F7C

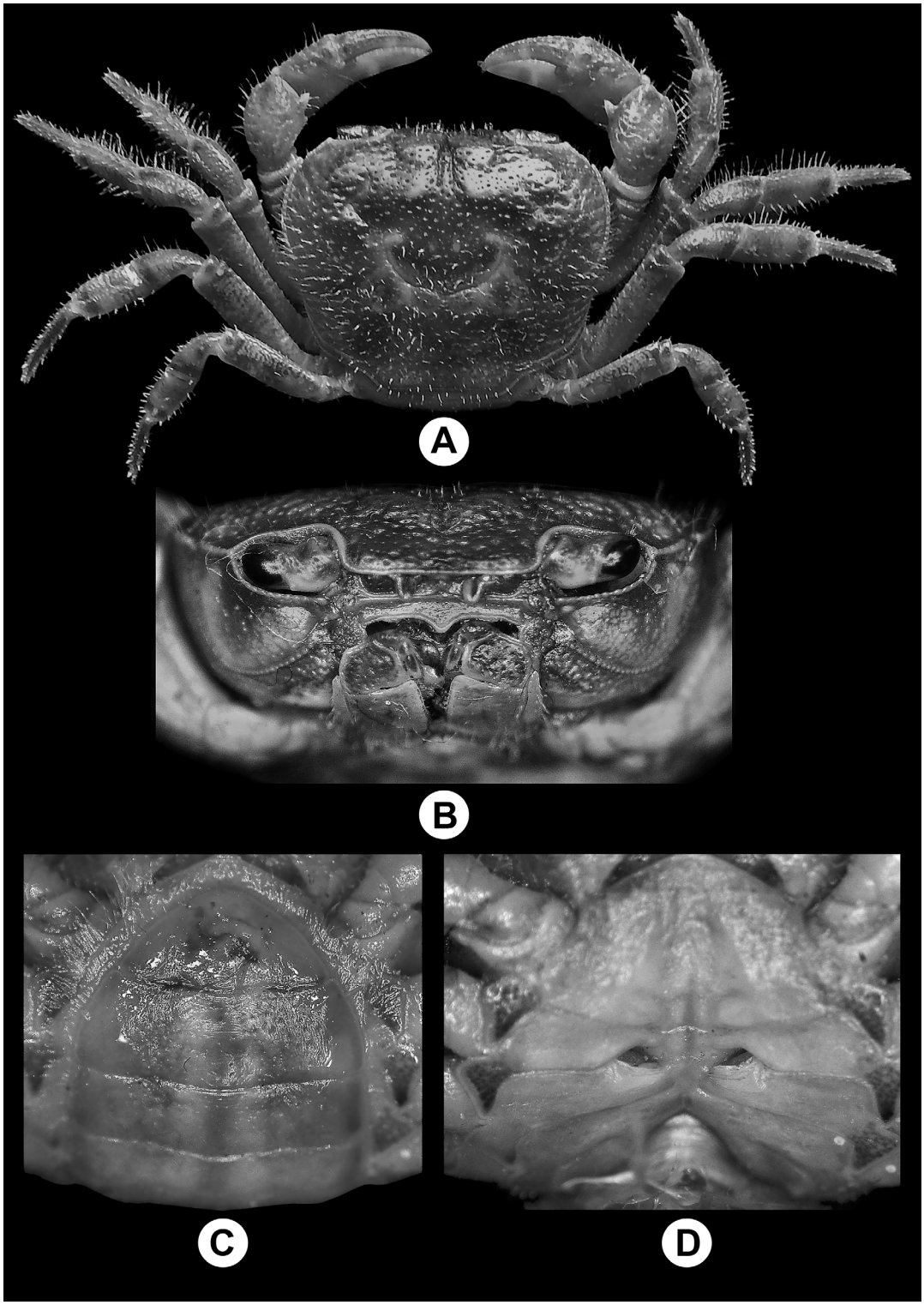


**Figure 8.** *Abormon capillosum* sp. nov., paratype female (14.5 × 11.8 mm) (ZSIK C.8612/2). **A**, overall dorsal view; **B**, frontal view of cephalothorax; **C**, pleonal somites 4–6 and telson; **D**, thoracic sternites showing vulvae.

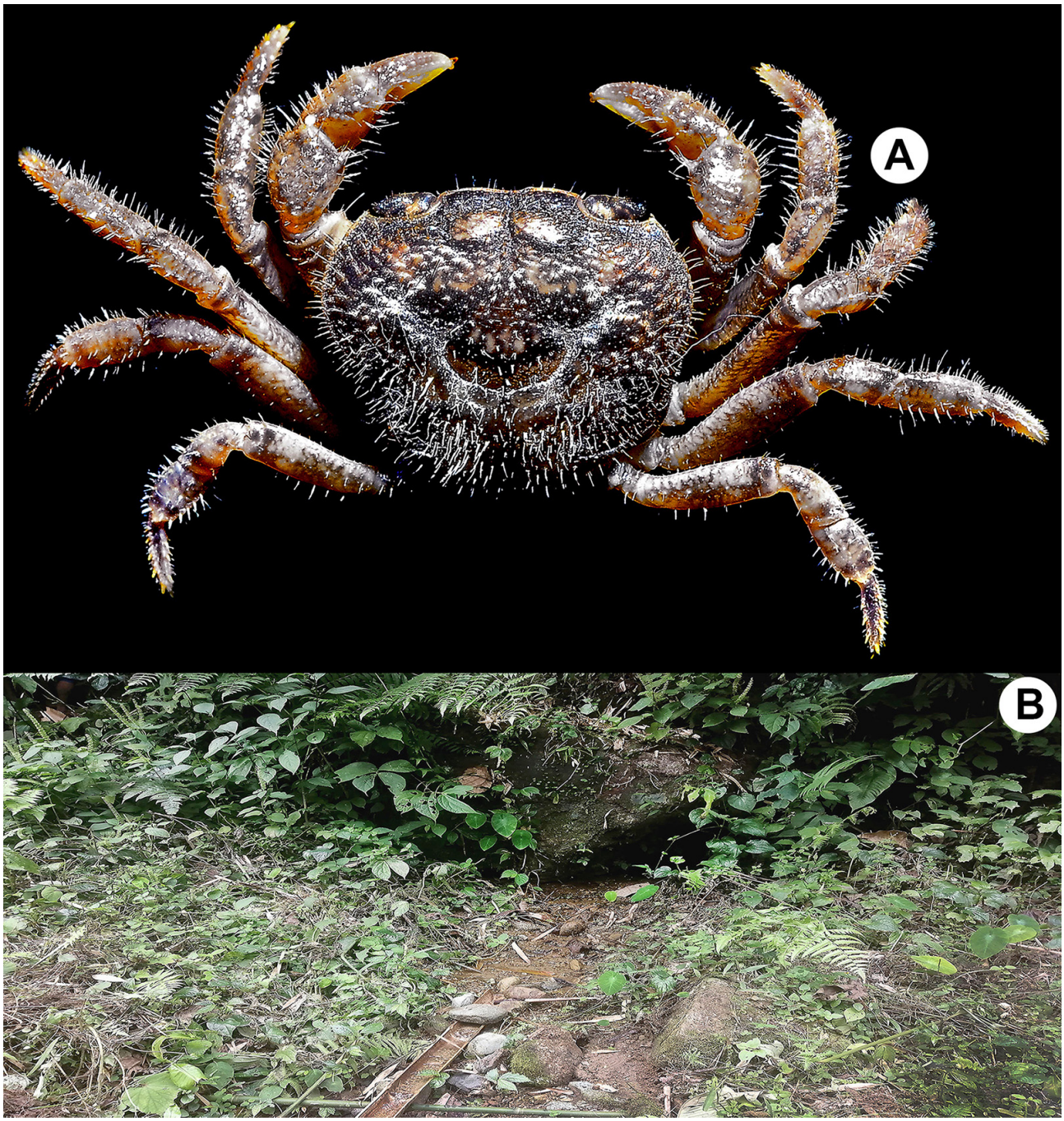


**Figure 9.** Coloration and habitat of *Abormon praecalvum* sp. nov. **A**, coloration of freshly preserved holotype male (10.2 × 8.5 mm) (ZSIK C.8610/2); **B**, dried stream at type locality, Tutting.

*Type material*. Holotype: male (CW 12.9 mm, CL 10.5 mm, CH 6.2 mm, FW 4.6 mm), Dambung Stream, approximately 1.7 km from Hawa Camp, Mouling National Park, Abor Hills, Upper Siang District, Arunachal Pradesh, India (28.686°N 94.969°E), altitude 406 m a.s.l., 28 October 2017, coll. G. Maheswaran *et al.* (ZSI-WRC C.1941). Paratypes: 1 male (CW 13.3 mm, CL 10.6 mm, CH 6.6 mm, FW 4.7 mm), 1 female (CW 14.5 mm, CL 11.5 mm, CH 7.1 mm, FW 5.0 mm), Ramsing Guest House, Mouling National Park, Abor Hills, Upper Siang District, Arunachal Pradesh, India (28.656°N 94.976°E), altitude 601 m a.s.l., 26 October 2017, coll. G. Maheswaran *et al.* (ZSI-WRC C.1942); 1 male (CW 12.3 mm, CL 10.7 mm, CH 6.2 mm, FW 4.5 mm), 1 female (CW 14.5 mm, CL 11.6 mm, CH 7.3 mm, FW

5.0 mm), Raecel, near Ramsing, Mouling National Park, Abor Hills, Upper Siang District, Arunachal Pradesh, India (28.652°N 94.986°E), altitude 785 m a.s.l., 27 October 2017, coll. G. Maheswaran *et al.* (ZSI-WRC C.1943).

*Other material*. 1 male (CW 10.1 mm, CL 8.1 mm, CH 4.6 mm, FW 3.8 mm), 3 females (CW 12.3–14.1 mm, CL 9.8–11.3 mm, CH 6.4–6.7 mm, FW 4.4–4.6 mm), same data as ZSI-WRC C.1942 (ZSI-WRC C.1944); 1 male (CW 12.7 mm, CL 10.5 mm, CH 6.3 mm, FW 4.7 mm), 3 females (CW 9.2–13.7 mm, CL 7.1–10.8 mm, CH 4.4–6.5 mm, FW 3.5–4.9 mm), Gamta, near Ramsing, Mouling National Park, Abor Hills, Upper Siang District, Arunachal Pradesh, India (28.655°N 94.968°E), altitude 891 m a.s.l., 26 October 2017, coll. G. Maheswaran *et al.* (ZSI-WRC C.1945); 3 males (CW 10.0–14.2 mm, CL 8.2–11.7 mm, CH 4.8–6.8 mm, FW 3. 6–5.0 mm), 5 females (CW 10.7–14.4 mm, CL 8.7–11.4 mm, CH 5.0–6.7 mm, FW 3.9–4.9 mm), same data as ZSI-WRC C.1943 (ZSI-WRC C.1946); 1 male (CW 13.1 mm, CL 10.6 mm, CH 6.2 mm, FW 4.7 mm), Ramsing, Mouling National Park, Abor Hills, Upper Siang District, Arunachal Pradesh, India (28.663°N, 94.989°E), altitude 444 m a.s.l., 3 November 2017, coll. G. Maheswaran *et al.* (ZSI-WRC C.1947).

*Diagnosis*. Small species (CW < 15 mm). Carapace ovate, broader than long (CW/CL = 1.2–1.3), relatively high (CH/CW = 0.5); dorsal surface sparsely setose; epistome posterior margin with triangular medial tooth, sinuous lateral margins (Figs. 1A, B, 2A, 4A). Chelipeds sparsely setose, with relatively broad inner distal major tooth on carpus (Figs. 1A–C, 2C, 4A). Ambulatory legs sparsely setose (Figs. 1A–C, 4A). Male pleon broad, triangular, with gently sinuous lateral margins; pleonal somite 6 trapezoidal, with straight lateral margins (Figs. 1C, 2E). G1 relatively stout, with terminal segment relatively more curved outwards at angle approximately 30° from longitudinal axis; terminal segment relatively stout and short, approximately 0.5 times combined length of flexible zone and subterminal segment, dorsal flap low, broadly rounded, medially located; subterminal segment gently sinuous, relatively stout, broader basally, distinctly narrow distally forming gentle shelf on outer margin, lacking protuberance on inner margin at distal end (Figs. 2D, 3A–C). G2 1.1 times G1 length; distal segment long, approximately 0.5 times length of basal segment, with blunt tip; basal segment stout at proximal third (Fig. 3D). Female telson broadly ovate, with broad apex (Fig. 4B). Vulvae located apart from each other (VD/SW = approximately 0.2); posterior sternal vulvar cover visible as slightly raised plate (Fig. 4C).

*Description of male holotype*. Carapace small (CW 12.9 mm), transversely ovate, broader than long (CW/CL = 1.2), moderately deep (CH/CW = 0.5); dorsal surface gently convex in frontal view, rugose, punctate, sparsely setose; anterolateral surface gently inflated in frontal view; anterolateral margins gently convex, cristate with low granules, approximately 0.4 times length of posterolateral margins measured in straight line; posterolateral margins converging posteriorly, concave medially; front sloping downwards, almost rectangular; frontal margin concave medially, smooth, cristate, broad (FW/CW = 0.35); epigastric cristae very low, visible as 2 broad, rugose protuberances; postorbital cristae indiscernible; external orbital angle triangular, with long outer margin, approximately 2 times length of inner margin; epibranchial tooth very low, with very small cleft; postorbital region gently concave; branchial regions gently inflated; cervical grooves barely visible; mesogastric groove deep, narrow, long, bifurcated posteriorly; H-shaped groove distinct; subhepatic region rugose, sparsely setose; suborbital region generally smooth, glabrous; supraorbital margin gently concave medially, cristate with low granules; suborbital margin concave, cristate with low granules, confluent with supraorbital margin; pterygostomial region smooth except for anteriorly located low granules; frontal medial triangle incomplete, with dorsal margin only, lateral margins indiscernible; epistome posterior margin with distinct, narrow, triangular medial tooth, sinuous lateral margins (Figs. 1A–C, 2A). Eyes occupying most of orbital space; eyestalk short, stout; cornea moderately large, pigmented (Fig. 1B).

Antennules long, folded in transversely broad fossae; antennae very short, reaching slightly beyond base of eyestalk (Fig. 1B). Mandibular palp 3-segmented; terminal segment simple, undivided. First, second maxillipeds each with long flagellum

on exopod. Third maxillipeds cover most of buccal cavity when closed; ischium subrectangular, longer than broad, with deep, oblique medial groove; merus subpentagonal, broader than long, sunken; exopod moderately stout, distally blunt, longer than ischium, reaching proximal third of merus, without flagellum (Figs. 1B, C, 2B).

Chelipeds rugose, sparsely setose, unequal, right chela larger (Fig. 1A–C). Major chela with 4 or 5 large, blunt teeth on each finger, distinct gape when fingers closed; dactylus gently curved, moderately stout, longer than upper margin of palm, with 2 longitudinal, parallel rows of 4 or 5 distinct but low dorsal granules; palm slightly longer than high, outer surface with widely spaced low granules, inner surface generally smooth; carpus rugose, gently inflated, with broad, moderately sharp, triangular inner distal major tooth and very low, blunt sub-basal tooth; merus rugose on outer surface, without subterminal spine (Figs. 1A–C, 2C).

Ambulatory legs moderately stout, short, P3 longest, sparsely setose; P2–P5 merus without subdistal spine, longest merus (P3) approximately 0.5 times CW; P5 propodus relatively stouter than P2–P4 propodus; P2–P5 dactylus gently recurved, subequal in length to propodus, with distinct, sharp chitinous spines on margins (Fig. 1A–C).

Thoracic sternites punctate, sparsely setose; S1/S2 completely fused; S2/S3 distinct as deep, narrow, concave groove, reaching lateral margins; S3/S4 visible as shallow, broad groove, running from edge of sternopleonal cavity to lateral margins; S4/S5, S5/S6, S6/S7 shallow, narrow, indiscernible towards sternopleonal cavity; S7/S8 shallow, narrow, medially interrupted by longitudinal groove, lacking transverse ridge (Figs. 1C, 2D). Pleonal locking mechanism with prominent tubercle on medial part of S5 (Fig. 2D). Sternopleonal cavity deep, long, almost reaching to imaginary line joining anterior part of cheliped coxae (Figs. 1C, 2D).

Pleon broad, triangular, with gently sinuous lateral margins; pleonal somites 1, 2 almost rectangular, narrower than pleonal somite 3; pleonal somites 3–5 trapezoidal; pleonal somite 6 trapezoidal, broader than long (proximal width approximately 2.2 times medial length), distinctly longer than preceding pleonal somites, distinctly shorter than telson, with straight lateral margins (Figs. 1C, 2E). Telson tongue-shaped, broader than long (proximal width approximately 1.4 times medial length), with concave lateral margins, apex broad, rounded (Figs. 1C, 2E).

G1 stout, sinuous, with terminal segment bent outwards at angle approximately 30° from longitudinal axis, tip blunt tapering, reaching beyond pleonal locking tubercle up to S4/S5 *in situ*; flexible zone large; terminal segment very stout, conical, long, approximately 0.5 times combined length of flexible zone and subterminal segment, dorsal flap distinct but low, broadly rounded, medially located, not reaching proximal end; subterminal segment gently sinuous, stout, broad at base, distinctly narrow distally forming gentle shelf on outer margin, lacking protuberance on inner margin at distal end; groove for G2 median (Figs. 2D, 3A–C). G2 slightly longer than G1, approximately 1.1 times G1 length; distal segment gently curved, cylindrical, long, approximately 0.5 times length of basal segment, with blunt tip; basal segment stout at proximal third, appearing narrowly ovate (Fig. 3D).

*Paratypes*. Both the male paratypes (ZSI-WRC C.1942, 1943) of *A. praecalvum* sp. nov. are adults and resemble the holotype in general carapace physiognomy and gonopod structure. The female paratypes (ZSI-WRC C.1942, 1943) are adults and resemble with the males in all non-sexual character states except for their relatively wider carapace (CW/CL = 1.3) (Fig. 4A). The pleon of the female paratypes is narrowly ovate, which covers the thoracic sternum except for S1, S2, and lateral edges when closed (Fig. 4B). In the female paratypes, pleonal somite 1 is the shortest; pleonal somites 2–5 are progressively longer; and pleonal somite 6 is the longest, much broader than long, slightly shorter than the telson, with the gently convex lateral margins (Fig. 4B). The female telson is broadly ovate, much broader than long, with almost straight lateral margins and rounded apex (Fig. 4B). The vulvae on S6 are located apart from each other (VD/SW = approximately 0.2), open anteriorly, transversely ovate, relatively small, occupying half the length of S6, anterior margin touching S5/S6, with the posterior sternal vulvar cover visible as a slightly raised plate (Fig. 4C).

*Etymology*. The species name is derived from the Latin '*praecalvus*' for 'becoming bald', referring to the presence of only a few scattered setae on the carapace and pereiopods of the crab.

*Remarks*. *Abormon praecalvum* sp. nov. can be distinguished from its only congener, *A. capillosum* sp. nov., by the sparsely setose carapace and pereiopods (Figs. 1A–C, 2A, 4A) (*vs*. densely setose carapace and pereiopods; Figs. 5A–C, 6A, 8A, B, 9A); the relatively broader inner distal major tooth on the carpus of the cheliped (Fig. 2C) (*vs*. relatively narrower inner distal major tooth on the carpus of the cheliped; Fig. 6C); and the straight lateral margins of the male pleonal somite 6 (Figs. 1C, 2E) (*vs*. gently convex lateral margins of the male pleonal somite 6; Figs. 5C, 6E). The gonopods and vulvae are quite different. The G1 of *A. praecalvum* sp. nov. can be differentiated from *A. capillosum* sp. nov. by being relatively stouter (Fig. 3A, C) (*vs*. relatively more slender; Fig. 7A, C); the G1 terminal segment is more strongly bent at an angle of about 30° from the longitudinal axis (Fig. 3A, C) (*vs*. only slightly bent at an angle of about 10° from the longitudinal axis; Fig. 7A, C); the G1 terminal segment is relatively stouter and shorter, approximately 0.5 times the combined length of the flexible zone and the subterminal segment (Fig. 3A–C) (*vs*. relatively slender and more elongate G1 terminal segment, approximately 0.6 times the combined length of the flexible zone and the subterminal segment; Fig. 7A–C); and the G1 subterminal segment is gently sinuous, relatively stouter, basally broader and distally more narrow that forms a gentle shelf on the outer margin, which lacks a protuberance on the inner margin at the distal end (Fig. 3A, C) (*vs*. distinctly more sinuous, relatively more slender, basally less broad and distally gradually narrower G1 subterminal segment that has a low rounded protuberance on the inner margin at the distal end; Fig. 7A, C). The G2 has a blunt tip and a stout basal segment at the proximal third in *A. praecalvum* sp. nov. (Fig. 3D), whereas in *A. capillosum* sp. nov., it has a bifurcated tip and a stout basal segment at the proximal two-fifths (Fig. 7D). The vulvae in *A. praecalvum* sp. nov. are located further apart (VD/SW = approximately 0.2), and the sternal vulvar cover is visible as a slightly raised plate (Fig. 4C), while in *A. capillosum* sp. nov., the vulvae are relatively closer (VD/SW = approximately 0.1), and the sternal vulvar cover is obvious, the posterior part being only a flat surface (Fig. 8D). In addition, the female telsons are different, being broadly ovate with a broad apex in *A. praecalvum* sp. nov. (Fig. 4B) but broadly triangular with a relatively narrower apex in *A. capillosum* sp. nov. (Fig. 8C).

*Color in life*. The carapace is purplish brown on the dorsal surface and yellowish brown on the ventral surface. The chelipeds and ambulatory legs are yellowish brown with purplish blotches. The setae are greyish-white.

*Habitat*. *Abormon praecalvum* sp. nov. was collected from shallow burrows adjacent to hilly streams, most of which flow through dense forest, at a relatively lower elevation (406–891 m a.s.l.) than that of the congener. Anthropogenic threats to these crabs are less likely as they live in a protected area.

*Type locality*. Mouling National Park, Abor Hills, Upper Siang District, Arunachal Pradesh, India.

*Geographical distribution*. *Abormon praecalvum* sp. nov. is currently known only from the Mouling National Park in the Upper Siang District of Arunachal Pradesh State, northeastern India.

### ***Abormon capillosum* sp. nov.**

(Figs. 5–8, 9A)

Zoobank: urn:lsid:zoobank.org:act:38569927-AFFE-42B3-991C-304C2D36F644

*Type material*. Holotype: male (CW 10.2 mm, CL 8.5 mm, CH 4.4 mm, FW 3.5 mm), Tulung Village, near Tutting, Abor Hills, Upper Siang District, Arunachal Pradesh, India (29.006°N 94.897°E), altitude 1240 m a.s.l., 5 November 2019, coll. S. Mitra (ZSIK C.8610/2). Paratypes: 1 male (CW 12.2 mm, CL 10.1 mm, CH 4.9 mm, FW 4.2 mm), same data as holotype (ZSIK C.8611/2); 1 female (CW 14.5 mm, CL 11.8 mm, CH 6.3 mm, FW 5.1 mm), same data as holotype (ZSIK C.8612/2).

*Diagnosis*. Small species (CW < 15 mm). Carapace ovate, broader than long (CW/CL = 1.2), relatively low (CH/CW = 0.4); dorsal surface densely setose;

epistome posterior margin with rounded to triangular medial tooth, concave lateral margins (Figs. 5A, B, 6A, 8A, B, 9A). Chelipeds densely setose, with relatively narrow inner distal major tooth on carpus (Figs. 5A, C, 6C, 8A, 9A). Ambulatory legs densely setose (Figs. 5A, C, 8A, 9A). Male pleon broad, triangular, with gently concave lateral margins; pleonal somite 6 trapezoidal, with gently convex lateral margins (Figs. 5C, 6E). G1 relatively slender, with terminal segment gently curved outwards at angle approximately 10° from longitudinal axis; terminal segment relatively slender and long, approximately 0.6 times combined length of flexible zone and subterminal segment, dorsal flap low, broadly rounded, medially located; subterminal segment distinctly sinuous, relatively slender, less broad basally, gradually narrow distally, with low, rounded protuberance on inner margin at distal end (Figs. 6D, 7A–C). G2 1.2 times G1 length; distal segment long, approximately 0.5 times length of basal segment, with bifurcated tip; basal segment stout at proximal two-fifths (Fig. 7D). Female telson broadly triangular, with relatively narrow apex (Fig. 8C). Vulvae located close to each other (VD/SW = approximately 0.1); posterior sternal vulvar cover not raised, relatively flat (Fig. 8D).

*Description of male holotype*. Carapace small (CW 10.2 mm), transversely ovate, broader than long (CW/CL = 1.2), low (CH/CW = 0.4); dorsal surface gently convex in frontal view, rugose, punctate, densely setose; anterolateral surface gently inflated in frontal view; anterolateral margins gently convex, cristate with low granules, approximately 0.4 times length of posterolateral margins measured in straight line; posterolateral margins converging posteriorly, concave medially; front sloping downwards, almost rectangular; frontal margin concave medially, smooth, cristate, broad (FW/CW = 0.35); epigastric cristae very low, visible as 2 broad, rugose protuberances; postorbital cristae indiscernible; external orbital angle triangular, with long outer margin, approximately 2.5 times length of inner margin; epibranchial tooth very low, with very small cleft; postorbital region gently concave; branchial regions gently inflated; cervical grooves barely visible; mesogastric groove deep, narrow, long, bifurcated posteriorly; H-shaped groove distinct; subhepatic region almost smooth, setose; suborbital region generally smooth, sparsely setose; supraorbital margin gently concave medially, cristate with low granules; suborbital margin concave, cristate with low granules, confluent with supraorbital margin; pterygostomial region smooth except for anteriorly located low granules; frontal medial triangle incomplete, with dorsal margin only, lateral margins indiscernible; epistome posterior margin with distinct, broad, rounded medial tooth, concave lateral margins (Fig. 5A–C). Eyes occupying most of orbital space; eyestalk short, stout; cornea moderately large, pigmented (Fig. 5B).

Antennules long, folded in transversely broad fossae; antennae very short, reaching slightly beyond base of eyestalk (Fig. 5B). Mandibular palp 3-segmented; terminal segment simple, undivided. First, second maxillipeds each with long flagellum on exopod. Third maxillipeds cover most of buccal cavity when closed; ischium subrectangular, longer than broad, with deep, oblique medial groove; merus subpentagonal, broader than long, sunken; exopod moderately stout, distally blunt, longer than ischium, reaching proximal third of merus, without flagellum (Fig. 5B, C).

Chelipeds rugose, densely setose, subequal, left chela slightly larger (Fig. 5A, C). Major chela with 4 or 5 large, sharp teeth on each finger, small gape when fingers closed; dactylus gently curved, moderately stout, longer than upper margin of palm, with 2 longitudinal, parallel rows of 4 or 5 distinct but low dorsal granules; palm slightly longer than high, outer surface with widely spaced low granules, inner surface generally smooth; carpus rugose, gently inflated, with narrow, sharp, triangular inner distal major tooth and very low, blunt sub-basal tooth; merus slightly rugose on outer surface, without subterminal spine (Fig. 5A, C).

Ambulatory legs moderately stout, short, P3 longest, densely setose; P2–P5 merus without subdistal spine, longest merus (P3) approximately 0.5 times CW; P5 propodus relatively stouter than P2–P4 propodus; P2–P5 dactylus gently recurved, subequal in length to propodus, with distinct, sharp chitinous spines on margins (Fig. 5A, C).

Thoracic sternites punctate, sparsely setose; S1/S2 short; S2/S3 distinct as deep, narrow, straight groove, reaching lateral margins; S3/S4 visible as shallow, broad groove, running from edge of sternopleonal

cavity to lateral margins; S4/S5, S5/S6, S6/S7 shallow, narrow, indiscernible towards sternopleonal cavity; S7/S8 shallow, narrow, medially interrupted by longitudinal groove, lacking transverse ridge (Fig. 5C). Pleonal locking mechanism with prominent tubercle on medial part of S5. Sternopleonal cavity deep, long, reaching to imaginary line joining anterior part of cheliped coxae (Fig. 5C).

Pleon broad, triangular, with gently concave lateral margins; pleonal somites 1, 2 almost rectangular, narrower than pleonal somite 3; pleonal somites 3–5 trapezoidal; pleonal somite 6 trapezoidal, broader than long (proximal width approximately 2.3 times medial length), distinctly longer than preceding pleonal somites, distinctly shorter than telson, with gently convex lateral margins (Fig. 5C). Telson tongue-shaped, broader than long (proximal width approximately 1.3 times medial length), with concave lateral margins, apex broad, rounded (Fig. 5C).

G1 slender, sinuous, with terminal segment gently curved outwards at angle of about 10° from longitudinal axis, tip blunt tapering, reaching beyond pleonal locking tubercle up to S4/S5 *in situ*; flexible zone large; terminal segment moderately stout, conical, long, approximately 0.6 times combined length of flexible zone and subterminal segment, dorsal flap distinct but low, broadly rounded, medially located, not reaching proximal end; subterminal segment sinuous, slender, broad at base, gradually narrow distally, with distinct, rounded protuberance on inner margin at distal end; groove for G2 median (Fig. 7A–C). G2 longer than G1, approximately 1.2 times G1 length; distal segment straight, cylindrical, long, approximately 0.5 times length of basal segment, with bifurcated tip; basal segment stout at proximal two-fifths, appearing narrowly ovate (Fig. 7D).

*Paratypes*. The male paratype (ZSIK C.8611/2) is slightly larger (CW 12.2 mm) than the holotype but agrees with it in all the diagnostic characters. The male paratype, however, has the dorsal surface of the carapace relatively less granulated, less punctate, and with fewer setae (Fig. 6A). The S2/S3 in the male paratype is concave (Fig. 6D) whereas it is straight in the holotype (Fig. 5C). Also, the pleonal somite 6 in the male paratype is relatively broader (proximal width approximately 2.4 times the medial length) (Fig. 6E) against the relative narrower (proximal width approximately 2.3 times the medial length) pleonal somite 6 of the holotype (Fig. 5C). The differences, however, are not substantial; their G1 structures being identical.

The female paratype (ZSIK C.8612/2) is larger (CW 14.5 mm) than the holotype and the male paratype but share most of the non-sexual characters. The medial tooth on the posterior margin of the epistome in the female paratype is relatively narrower and triangular (Fig. 8B), but this structure is relatively broader and rounded in the holotype (Fig. 5B) and the male paratype. The pleon of the female paratype is narrowly ovate, which covers the thoracic sternum except for S1, S2, and lateral edges when closed (Fig. 8C). Pleonal somite 1 is the shortest; pleonal somites 2–5 are progressively longer; and pleonal somite 6 is the longest, much broader than long, slightly shorter than the telson, with the gently convex lateral margins (Fig. 8C). The telson of the female paratype is broadly triangular, much broader than long, with gently convex lateral margins and narrow apex (Fig. 8C). The vulvae on S6 are close to each other (VD/SW = approximately 0.1), open anteriorly, transversely ovate, relatively small, occupying half the length of S6, anterior margin touching S5/S6, and the posterior sternal vulvar cover is not raised and relatively flat (Fig. 8D).

*Etymology*. The species name is derived from the Latin '*capillosus*' for very hairy, alluding to the dense setae covering the carapace and pereiopods of the crab.

*Remarks*. *Abormon capillosum* sp. nov. is easily distinguished from the only congener, *A. praecalvum* sp. nov. (see remarks for latter species).

*Color in life*. The carapace is light grey with dark purplish brown patches on the dorsal surface and yellowish brown on the ventral surface (Fig. 9A). The chelipeds and ambulatory legs are light brown with purplish blotches (Fig. 9A). The setae are greyish-white (Fig. 9A).

*Habitat*. *Abormon capillosum* sp. nov. is found in primary montane dipterocarp forests at a relatively high elevation (1240 m a.s.l.). Individuals were found in burrows of soft mud, next to eroded stones, adjacent

to a narrow and almost dried stream that is connected to the Siang River (Fig. 9B). The crabs retreated into their shallow burrows (depth up to 10 cm) when disturbed. The habitat is pristine and almost free from anthropogenic disturbances.

*Type locality*. Tutting, Abor Hills, Upper Siang District, Arunachal Pradesh, India.

*Geographical distribution*. *Abormon capillosum* sp. nov. is currently known only from the type locality, *i.e.*, Tutting in the Upper Siang District of Arunachal Pradesh State, northeastern India.

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