

Five new species of freshwater crabs of the genera
Ghatiana Pati & Sharma, 2014
and *Sahyadriana* Pati & Thackeray, 2018
from India (Decapoda: Brachyura: Gecarcinucidae)

Sameer K. PATI & Tejas THACKERAY



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Colour in life *Ghatiana durrelli* n. sp., ♀ from Amba.

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Five new species of freshwater crabs of the genera *Ghatiana* Pati & Sharma, 2014 and *Sahyadriana* Pati & Thackeray, 2018 from India (Decapoda: Brachyura: Gecarcinucidae)

Sameer K. PATI

Zoological Survey of India, Western Regional Centre,
Akurdi, Pune 411 044 (India)
sameer_pati@yahoo.co.in (corresponding author)

Tejas THACKERAY

Thackeray Wildlife Foundation,
Vaibhav Chambers, BKC, Bandra, Mumbai 400 051 (India)

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ABSTRACT

We recognize two new species of *Ghatiana* Pati & Sharma, 2014, and three new species of *Sahyadriana* Pati & Thackeray, 2018, from the Western Ghats of India. *Ghatiana durrelli* n. sp. is characterized mainly by the proportionately narrower adult carapace, the relatively broader male pleonal somite 6, and the relatively stouter terminal segment of the male first gonopod. *Ghatiana rouxi* n. sp. is differentiated from congeners by its proportionately narrower adult carapace with the gently convex lateral margins. *Sahyadriana inopinata* n. sp. is characterized by a suite of characters that includes the visible epibranchial tooth, the relatively slenderer and longer terminal segment of the male first gonopod, and the subovate and relatively smaller adult vulva that is positioned a clear distance from the suture between thoracic sternites 5 and 6. *Sahyadriana keshari* n. sp. differs from the allied *S. waghi* (Pati in Pati, Thackeray & Khair, 2016) by the relatively stouter terminal segment of the male first gonopod, and the relatively larger adult vulva, which is positioned close to the suture between thoracic sternites 5 and 6. *Sahyadriana tamhini* n. sp. most resembles *S. alcocki* (Pati in Pati, Thackeray & Khair, 2016) but can be differentiated by its relatively longer, distally distinctly narrow terminal segment and the sinuous inner margin of the subterminal segment of the male first gonopod, and the relatively closely positioned and larger adult vulvae. *Ghatiana* and *Sahyadriana* now include 10 species and 13 species, respectively. An updated key is provided for both genera.

KEY WORDS

Crustacea,
Gecarcinucidae,
India,
Western Ghats,
new species.

RÉSUMÉ

Cinq nouvelles espèces de crabes d'eau douce des genres *Ghatiana* Pati & Sharma, 2014 et *Sahyadriana* Pati & Thackeray, 2018, originaires d'Inde (Decapoda: Brachyura: Gecarcinucidae).

Nous reconnaissons deux nouvelles espèces de *Ghatiana* Pati & Sharma, 2014, et trois nouvelles espèces de *Sahyadriana* Pati & Thackeray, 2018, originaires des Ghâts occidentaux, Inde. *Ghatiana durrelli* n. sp. se caractérise principalement par sa carapace adulte proportionnellement plus étroite, le somite pléonale 6 relativement plus large chez le mâle, et le segment terminal relativement plus épais du premier gonopode mâle. *Ghatiana rouxi* n. sp. se différencie de ses congénères par sa carapace adulte proportionnellement plus étroite avec des marges latérales légèrement convexes. *Sahyadriana inopinata* n. sp. se caractérise par un ensemble de caractères qui comprend la dent épibranchiale visible, le segment terminal du premier gonopode mâle relativement plus mince et plus long, et la vulve adulte subovate et relativement plus petite qui est positionnée à une distance nette de la suture entre les sternites thoraciques 5 et 6. *Sahyadriana keshari* n. sp. de l'espèce proche *S. waghi* (Pati in Pati, Thackeray & Khair, 2016) par le segment terminal relativement plus épais du premier gonopode mâle, et la vulve adulte relativement plus grande, positionnée près de la suture entre les sternites thoraciques 5 et 6. *Sahyadriana tamhini* n. sp. ressemble davantage à *S. alcocki* (Pati in Pati, Thackeray & Khair, 2016) mais s'en distingue par le segment terminal relativement plus long, avec une partie distale clairement étroite et la marge intérieure sinueuse du segment subterminal du premier gonopode mâle, et les vulves adultes relativement proches et plus grandes. *Ghatiana* et *Sahyadriana* comprennent désormais 10 et 13 espèces, respectivement. Une clé d'identification mise à jour est fournie pour les deux genres.

MOTS CLÉS

Crustacea,
Gecarcinucidae,
Inde,
Ghâts occidentaux,
espèces nouvelles.

INTRODUCTION

The gecarcinucid crab genera *Ghatiana* Pati & Sharma, 2014, and *Sahyadriana* Pati & Thackeray, 2018, were so far known by eight species and 10 species, respectively (Pati & Thackeray 2018). *Ghatiana* is distributed in the Goa, Karnataka and Maharashtra states of India, but all the species are endemic to the Western Ghats except for *G. atropurpurea* Pati, Thackeray and Khair, 2016 (Pati & Thackeray 2018; Pati & Pradhan 2020). On the other hand, the distribution of *Sahyadriana* is restricted to the Western Ghats of Maharashtra (Pati & Thackeray 2018; Pati & Pradhan 2020).

Ghatiana and *Sahyadriana* are distinct from the known gecarcinucid genera of India by the absence of a flagellum on the exopod of the third maxilliped and the very short male second gonopod. *Ghatiana* can be diagnosed by its relatively narrow front, the presence of a flagellum on the exopod of the first and second maxillipeds, the relatively longer exopod of the third maxilliped, the relatively stouter male pleon, the relatively squarish male pleonal somite 6, the elongated male telson, and the relatively short and stout male first gonopod, whereas *Sahyadriana* is characterized mainly by the relatively shorter ambulatory legs, with densely setose dactylus and/or propodus, the relatively longer male sternopleonal cavity that reaches beyond the imaginary line joining the bases of the third maxillipeds, and the short male telson (Pati & Thackeray 2018).

We recognize herein two new species of *Ghatiana* and three new species of *Sahyadriana*, based on the recent collections from the Western Ghats of Goa, Karnataka, and Maharashtra. An updated key is provided for both genera.

With the present discovery, *Ghatiana* is now represented by 10 species and *Sahyadriana* by 13 species (Pati & Thackeray

2018). The Western Ghats of India now include 69 species of gecarcinucid crabs (Pati & Pradhan 2020; Raj *et al.* 2021; present study). The Goa state is presently known by 4 gecarcinucid species, Karnataka by 14 species, and Maharashtra by 33 species (Pati & Thackeray 2018; Pati *et al.* 2019a; present study). India currently comprises 137 species of freshwater crabs (98 gecarcinucid species and 39 potamid species) (Mitra *et al.* 2018, 2020; Pati & Thackeray 2018; Mitra & Waikhom 2019; Pati & Vargila 2019; Pati *et al.* 2019b, c, 2020a, b; Mitra 2020; Pati 2021; Raj *et al.* 2021; present study).

MATERIAL AND METHODS

The material examined is located in the Zoological Survey of India, Western Regional Centre, Pune, India (ZSI-WRC). The measurement of carapace (in millimeters) follows Ng (1988). The terminologies are after Ng (1988), with some changes as suggested in Guinot *et al.* (2013) and Davie *et al.* (2015).

ABBREVIATIONS

CW	carapace width;
CL	carapace length;
CH	carapace height;
FW	frontal width;
P3	pereiopod 3;
S1-S8	thoracic sternites 1 to 8;
S5/S6	suture between thoracic sternites 5 and 6;
G1	male first gonopod;
G2	male second gonopod;
VD	closest distance between female vulvae;
SW	maximum width of sternum.

TAXONOMY

Superfamily GECARCINUCOIDEA Rathbun, 1904
Family GECARCINUCIDAE Rathbun, 1904

Genus *Ghatiana* Pati & Sharma, 2014

Ghatiana Pati & Sharma, 2014: 1281.

TYPE SPECIES. — *Ghatiana aurantiaca* Pati & Sharma, 2014, by original designation; gender feminine.

Ghatiana durrelli n. sp.
(Figs 1A-D; 2A-H; 3A, B)

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TYPE MATERIAL. — **Holotype.** India • ♂ (CW 19.53 mm, CL 13.19 mm, CH 9.38 mm, FW 7.19 mm); Maharashtra: Satara district: Ramban Trail, Koyna Wildlife Sanctuary; 17°25'58"N, 73°42'32"E; alt. 940 m; 1.VII.2017; Tejas Thackeray leg.; ZSI-WRC C.1999.
Paratypes. India • 3 ♂ (CW 14.18–17.84 mm, CL 9.17–12.22 mm, CH 6.01–7.86 mm, FW 5.42–6.83 mm); 3 ♀ (CW 16.06–22.83 mm, CL 10.66–15.04 mm, CH 7.46–10.64 mm, FW 6.06–8.40 mm); same data as for holotype; ZSI-WRC C.2000.

OTHER MATERIAL. — India • ♂ (CW 13.77 mm, CL 9.45 mm, CH 5.96 mm, FW 5.08 mm), 2 ♀ (CW 18.91–21.89 mm, CL 12.64–14.51 mm, CH 8.66–9.78 mm, FW 6.82–7.46 mm); Maharashtra: Kolhapur district: Kokan Darshan Point, Masnoli village, c. 5 km south of Amba; 16°55'22"N, 73°47'45"E; alt. 840 m; 15.VII.2020; Tejas Thackeray leg.; ZSI-WRC C.2001.

TYPE LOCALITY. — India: Maharashtra: Satara district: Ramban Trail, Koyna Wildlife Sanctuary; 17°25'58.8"N, 73°42'32.4"E; alt. 940 m.

DIAGNOSIS. — Carapace in adult proportionately narrow (CW/CL = 1.5), moderately to strongly arched (CH/CL = 0.6–0.7); lateral margins strongly convex; anterolateral margins relatively short, cristate; epibranchial tooth visible as weak notch; branchial regions slightly rugose; frontal margin some distance from anterior margin of epistome, exposing antennular fossae (Fig. 1A–C). First, second maxillipeds with long flagellum on exopod; third maxilliped lacking flagellum on exopod (Fig. 2A). Major chela with pointed fingertips; palm in adult male relatively stout; ventral margin of fixed finger and distal half of palm in adult male strongly concave (Figs 1A, D; 2B). Ambulatory legs relatively long (P3 length/CL = c. 2.3) (Fig. 1A). Male pleonal somite 6 subquadrate, slightly broader than long (Figs 1D; 2C). Male telson elongated (Figs 1D; 2C). G1 relatively slender, almost straight; terminal segment relatively stout, distally gently curved inwards, relatively long, c. 0.5 times length of subterminal segment; subterminal segment relatively slender (Fig. 2D, E). G2 very short, with very short distal segment (Fig. 2F). Female pleon in adult broadly subtriangular (Fig. 2G). Vulvae in adult positioned apart from each other (VD/SW = c. 0.3), each subovate in shape, relatively large, occupying c. 0.4 times length of S6, positioned close to S5/S6 (Fig. 2H).

ETYMOLOGY. — The species name honours British naturalist, Gerald Malcolm Durrell for his in situ and ex situ conservation efforts. The specific epithet is thus conceived as a noun in the genitive singular.

COLOUR IN LIFE. — The crabs show colour variations. They are generally fluorescent red dorsally (Fig. 3A) and relatively paler ventrally. Some crabs are reddish brown dorsally (Fig. 3B).

ECOLOGICAL NOTES. — *Ghatiana durrelli* n. sp. is a nocturnal crab and is found in tree trunk holes and in holes or crevices of laterite rocks (locally known as “Jambha”). The species occurs at elevated mountains (840–940 m altitude). Some individuals were observed feeding on dead millipedes.

GEOGRAPHICAL DISTRIBUTION. — *Ghatiana durrelli* n. sp. is currently known only from two localities of Maharashtra state (Kolhapur and Satara districts), India. Both the localities are situated in the Western Ghats.

REMARKS

Ghatiana durrelli n. sp. most closely resembles to *G. aurantiaca* (type species) mainly due to the proportionately narrower adult carapace [CW/CL = 1.5 in *G. durrelli* n. sp. (Fig. 1A, B); CW/CL = 1.4 in *G. aurantiaca* (see Pati & Sharma 2014: fig. 2A; Pati & Thackeray 2018: fig. 4A)], the exposed fossae due to the gap between the frontal margin and the anterior margin of the epistome (Fig. 1C; see Pati & Sharma 2014: fig. 2B; Pati & Thackeray 2018: fig. 4B), and an almost straight G1 (Fig. 2D, E; see Pati & Sharma 2014: fig. 3E, F; Pati & Thackeray 2018: fig. 4D, E). *Ghatiana durrelli* n. sp., however, is differentiated from *G. aurantiaca* by the relatively broader male pleonal somite 6 (Figs 1D; 2C) (vs male pleonal somite 6 as long as broad; see Pati & Sharma 2014: figs 2C, 3B; Pati & Thackeray 2018: fig. 4C), the relatively stouter G1 terminal segment (Fig. 2D, E) (vs G1 terminal segment relatively slender; see Pati & Sharma 2014: fig. 3E–G; Pati & Thackeray 2018: fig. 4D, E), the relatively slenderer G1 subterminal segment (Fig. 2D, E) (vs G1 subterminal segment relatively stouter; see Pati & Sharma 2014: fig. 3E, F; Pati & Thackeray 2018: fig. 4D, E), and the relatively closely positioned adult vulva in relation to S5/S6 (Fig. 2H) (vs adult vulva positioned a clear distance from S5/S6; see Pati & Thackeray 2018: fig. 4H).

Among congeners, the stout G1 terminal segment is unique in *G. durrelli* n. sp. and *G. pulchra* Pati & Thackeray, 2018 (Fig. 2D; see Pati & Thackeray 2018: fig. 8I, J). In fact, the G1 structure of *G. durrelli* n. sp. is almost identical to that of *G. pulchra* except for the gently inwardly curved terminal segment (Fig. 2D) (vs straight G1 terminal segment in *G. pulchra*; see Pati & Thackeray 2018: fig. 8I, J). *Ghatiana durrelli* n. sp. can nevertheless be separated from *G. pulchra* by the proportionately narrower adult carapace, CW/CL = 1.5 (Fig. 1A, B) (vs proportionately broader adult carapace, CW/CL = 1.6; see Pati & Thackeray 2018: fig. 8A), the strongly concave ventral margin of the fixed finger and the distal half of the palm of the major chela in adult males (Fig. 2B) (vs gently concave ventral margin of the fixed finger and the distal half of the palm of the major chela in adult males; see Pati & Thackeray 2018: fig. 8D), and the relatively longer ambulatory legs, P3 length/CL = c. 2.3 (Fig. 1A) (vs the relatively shorter ambulatory legs, P3 length/CL = c. 2.0; see Pati & Thackeray 2018: fig. 8A).



FIG. 1. — *Ghatiana durrelli* n. sp., holotype ♂ (19.53 × 13.19 mm), ZSI-WRC C.1999: **A**, overall dorsal view; **B**, dorsal view of cephalothorax; **C**, frontal view of cephalothorax; **D**, overall ventral view. Scale bars: A, D, 10 mm; B, C, 5 mm.

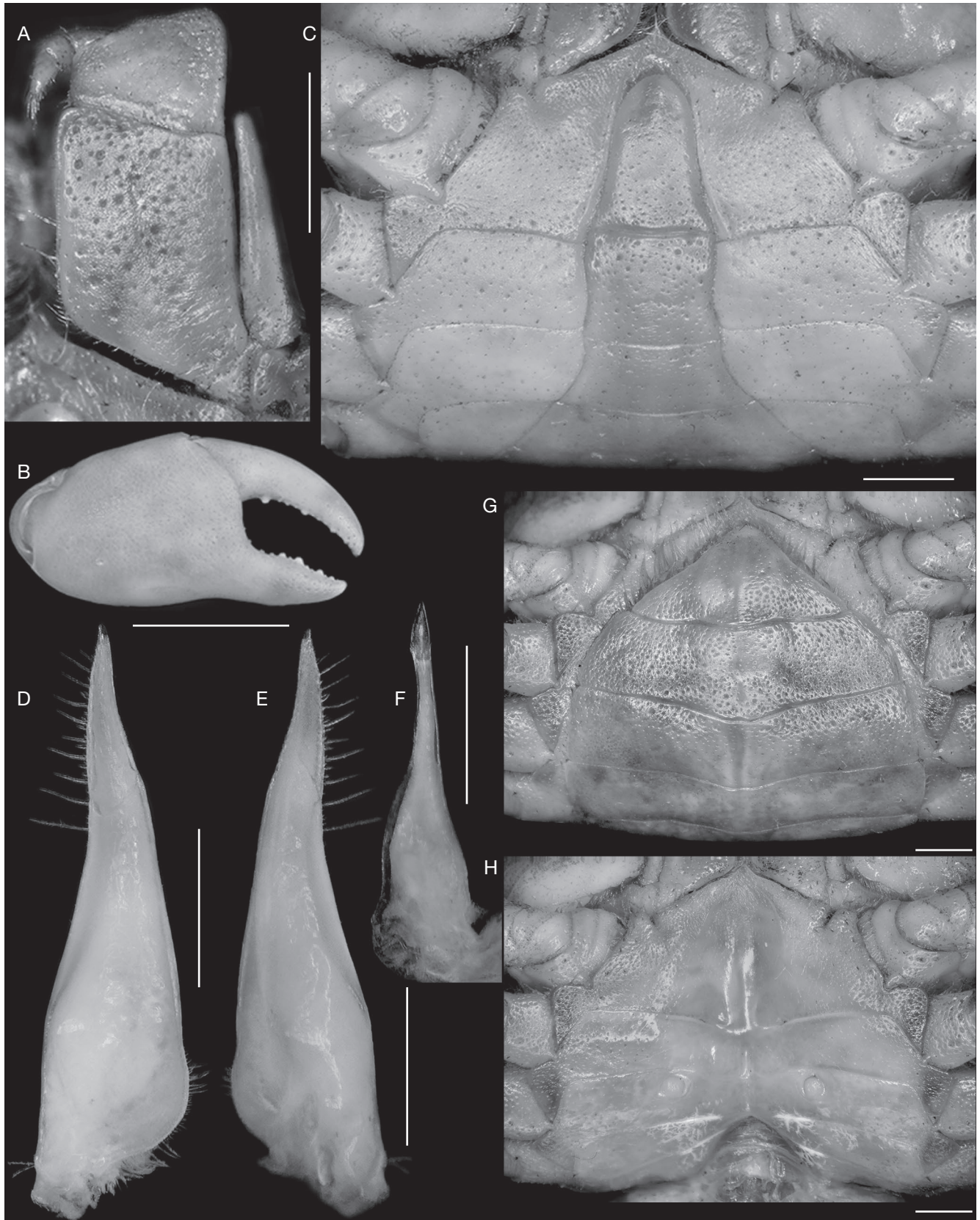


FIG. 2. — *Ghatiana durrelli* n. sp., holotype ♂ (19.53 × 13.19 mm), ZSI-WRC C.1999 (A–F); paratype ♀ (22.83 × 15.04 mm) (ZSI-WRC C.2000) (G, H): A, left third maxilliped; B, major or right chela (outer view); C, S1–S7, pleonal somites 4–6, and telson; D, left G1 (dorsal view); E, left G1 (ventral view); F, left G2; G, pleonal somites 4–6 and telson; H, S1–S8 showing vulvae. Scale bars: A, C, G, H, 2 mm; B, 10 mm; D–F, 1 mm.

Ghatiana rouxi n. sp.
(Figs 3C; 4A-D; 5A-H)

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TYPE MATERIAL. — **Holotype.** India • ♂ (CW 13.38 mm, CL 10.95 mm, CH 7.28 mm, FW 6.13 mm); Karnataka: Uttara Kannada district: Shirley Waterfall; 14°52'55"N, 74°39'46"E; alt. 168 m; 6.X.2016; Tejas Thackeray and Swapnil Pawar leg.; ZSI-WRC C.2002. **Paratypes.** India • 2 ♂ (CW 12.39–12.41 mm, CL 9.77–9.83 mm, CH 6.60–6.76 mm, FW 5.50–5.55 mm), ♀ (CW 14.11 mm, CL 11.19 mm, CH 7.32 mm, FW 6.18 mm); same data as for holotype; ZSI-WRC C.2003 • 2 ♀ (CW 12.87–13.16 mm, CL 10.44–10.56 mm, CH 7.42–7.56 mm, FW 5.81–6.03 mm); Karnataka: Uttara Kannada district: Mavinagundi, near Jog Falls; 14°15'18"N, 74°48'21"E; alt. 601 m; 7.X.2016; Tejas Thackeray and Swapnil Pawar leg.; ZSI-WRC C.2004 • ♂ (CW 12.99 mm, CL 10.37 mm, CH 6.93 mm, FW 5.70 mm), ♀ (CW 14.81 mm, CL 12.14 mm, CH 8.29 mm, FW 6.75 mm); Goa: North Goa district: Chorla; 15°38'5"N, 74°7'12"E; alt. 423 m; 18.IX.2016; Tejas Thackeray and Swapnil Pawar leg.; ZSI-WRC C.2005.

OTHER MATERIAL. — India • 4 ♂ (CW 8.20–12.50 mm, CL 6.53–9.62 mm, CH 4.06–6.45 mm, FW 3.81–5.50 mm), 6 ♀ (CW 10.63–14.10 mm, CL 8.20–11.16 mm, CH 5.60–7.39 mm, FW 4.69–6.15 mm); Karnataka: Uttara Kannada district: Mavinagundi, near Jog Falls; 14°15'18"N, 74°48'21"E; alt. 601 m; 7.X.2016; Tejas Thackeray and Swapnil Pawar leg.; ZSI-WRC C.2006.

TYPE LOCALITY. — India: Karnataka: Uttara Kannada district: Shirley Waterfall; 14°52'55"N, 74°39'46"E; alt. 168 m.

DIAGNOSIS. — Carapace in adult proportionately narrow (CW/CL = 1.2–1.3), moderately to strongly arched (CH/CL = 0.6–0.7); lateral margins gently convex; anterolateral margins relatively short, cristate; epibranchial tooth visible as distinct notch; branchial regions rugose; frontal margin very close to anterior margin of epistome, hiding antennular fossae (Fig. 4A–C). First, second maxillipeds with long flagellum on exopod; third maxilliped lacking flagellum on exopod (Fig. 5A). Major chela with pointed fingertips; palm in adult male relatively stout; ventral margin of fixed finger and distal half of palm in adult male strongly concave (Figs 4A, D; 5B). Ambulatory legs relatively short (P3 length/CL = c. 2.0) (Fig. 1A). Male pleonal somite 6 subquadrate, slightly longer than broad (Figs 4D; 5C). Male telson elongated (Figs 4D; 5C). G1 relatively stout, medially gently curved outwards; terminal segment relatively slender, distally gently curved inwards, relatively long, c. 0.5 times length of subterminal segment; subterminal segment relatively stout (Fig. 5D, E). G2 very short, with very short distal segment (Fig. 5F). Female pleon in adult broadly subtriangular (Fig. 5G). Vulvae in adult relatively closely positioned (VD/SW = c. 0.2), each subovate in shape, relatively large, occupying c. 0.4 times length of S6, positioned some distance from S5/S6 (Fig. 5H).

ETYMOLOGY. — The species is named after the Swiss zoologist, Dr Jean Roux for his contributions on the study of crabs of the Western Ghats. The species name is conceived as a noun in the genitive singular.

COLOUR IN LIFE. — Carapace, chelipeds, and ambulatory legs all are deep purple dorsally (Fig. 3C). The carapace and pereopods are relatively paler on the ventral surface.

ECOLOGICAL NOTES. — *Ghatiana rouxi* n. sp. was found under small boulders adjacent to waterfalls and along stream banks. They can be also seen underneath small boulders of forest trails clearly away from water bodies. On the basis of the collected material, the species occurs at both low and high elevations (168–601 m altitude).

GEOGRAPHICAL DISTRIBUTION. — *Ghatiana rouxi* n. sp. is currently known only from the Western Ghats of the Goa and Karnataka states, India.

REMARKS

Ghatiana rouxi n. sp. is a relatively smaller species (the largest known adult female with a fully developed pleon measures 14.81 mm in CW), which has a proportionately narrower adult carapace (CW/CL = 1.2–1.3) with the lateral margins gently convex (Fig. 4A, B). The gently convex lateral margins of the carapace is characteristic to *G. rouxi* n. sp. (Fig. 4A, B); the remaining species of the genus have a carapace with the lateral margins strongly convex (Fig. 1A, B; Pati & Sharma 2014: fig. 4A; Pati & Thackeray 2018: figs 3A; 4A; 5A; 6A; 7A; 8A; 9A; 10A).

Ghatiana rouxi n. sp. has an elongated male pleonal somite 6 (Figs 4D; 5C), which is also characteristic to *G. botti* Pati & Thackeray, 2018, *G. rathbunae* Pati & Thackeray, 2018, and *G. splendida* Pati, Thackeray & Khair, 2016 (see Pati *et al.* 2016: fig. 5C, G; Pati & Thackeray 2018: figs 6C, G; 9C, G; 10C). *Ghatiana rouxi* n. sp. is immediately distinguished from *G. botti*, *G. rathbunae*, and *G. splendida* by the basally broad subterminal segment of the G1 (Fig. 5D, E) (vs G1 subterminal segment basally narrow; see Pati *et al.* 2016: fig. 6A, B; Pati & Thackeray 2018: figs 6I, K; 9I, K; 10D, E) in addition to the gently convex lateral margins of its carapace (Fig. 4A, B) (vs carapace with strongly convex lateral margins; see Pati *et al.* 2016: fig. 5A; Pati & Thackeray 2018: figs 6A; 9A; 10A).

The stout, basally broad G1 subterminal segment of *G. rouxi* n. sp. is a character shared only with *G. aurantiaca* Pati & Sharma, 2014 (Fig. 5D, E; see Pati & Thackeray 2018: fig. 4D, E). In addition, their G1s are relatively slenderer, distally gently curved inwards, with the terminal segment relatively longer, c. 0.5 times the length of the subterminal segment (Fig. 5D, E; see Pati & Thackeray 2018: fig. 4D, E). The G1 is nevertheless gently curved outwards medially in *G. rouxi* n. sp. (Fig. 5D, E) as compared to the straight G1 of *G. aurantiaca* (see Pati & Thackeray 2018: fig. 4D, E). Moreover, the structure of the adult vulvae and most of the features of the carapace are similar in both. The antennular fossae, however, are being hidden by the closely located frontal margin and the anterior margin of the epistome in *G. rouxi* n. sp. (Fig. 4C) (vs exposed fossae due to the gap between the frontal margin and the anterior margin of the epistome in *G. aurantiaca*; see Pati & Sharma 2014: fig. 2B; Pati & Thackeray 2018: fig. 4B). Again, their male pleonal somite 6 is different, being subquadrate, slightly longer than broad in *G. rouxi* n. sp. (Figs 4D; 5C) and quadrate, as long as broad in *G. aurantiaca* (see Pati & Sharma 2014: figs 2C; 3B; Pati & Thackeray 2018: fig. 4C).



FIG. 3. — Colour in life: **A**, *Ghatiana durrelli* n. sp., ♀ from Amba; **B**, *Ghatiana durrelli* n. sp., ♂ from type locality; **C**, *Ghatiana rouxi* n. sp., ♂ from Chorla; **D**, *Sahyadriana inopinata* n. sp., ♂ from type locality; **E**, *Sahyadriana keshari* n. sp., ♂ from type locality; **F-H**, *Sahyadriana tamhini* n. sp., all ♂ from type locality and its vicinity. The photographed specimens could not be collected.



FIG. 4. — *Ghatiana rouxi* n. sp., holotype ♂ (13.38 × 10.95 mm), ZSI-WRC C.2002: **A**, overall dorsal view; **B**, dorsal view of cephalothorax; **C**, frontal view of cephalothorax; **D**, overall ventral view. Scale bars: A, B, D, 10 mm; C, 5 mm.

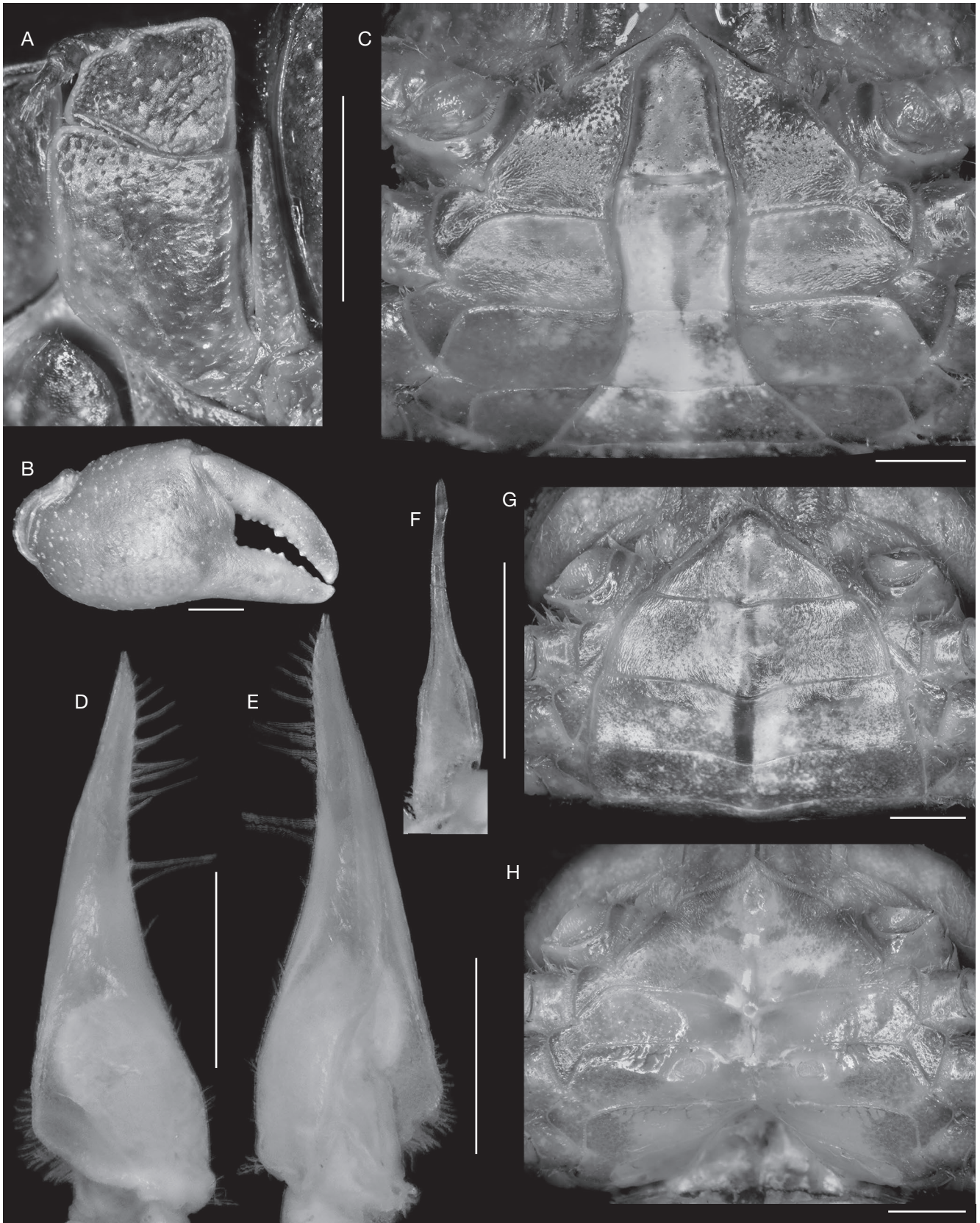


FIG. 5. — *Ghatiana rouxi* n. sp., holotype ♂ (13.38 × 10.95 mm), ZSI-WRC C.2002 (A–F); paratype ♀ (14.11 × 11.19 mm), ZSI-WRC C.2003 (G, H): A, left third maxilliped; B, major or right chela (outer view); C, S1–S7, pleonal somites 4–6, and telson; D, right G1 (dorsal view); E, right G1 (ventral view); F, right G2; G, pleonal somites 4–6 and telson; H, S1–S8 showing vulvae. Scale bars: A–C, G, H, 2 mm; D–F, 1 mm.

KEY TO SPECIES OF *GHATIANA* PATI & SHARMA, 2014 (modified from Pati & Thackeray 2018)

1. Adult carapace proportionately broader (CW/CL = 1.6-1.9) 2
- Adult carapace proportionately narrower (CW/CL = 1.2-1.5) 3
2. Major chela of adult male with relatively slenderer palm; G1 medially distinctly curved outwards, with relatively shorter terminal segment, *c.* 0.3 times length of subterminal segment *Ghatiana basalticola* (Klaus, Fernandez & Yeo, 2014) [KARNATAKA: Belgaum district].
- Major chela of adult male with relatively stouter palm; G1 almost straight, with relatively longer terminal segment, *c.* 0.5 times length of subterminal segment *Ghatiana pulchra* Pati & Thackeray, 2018 [MAHARASHTRA: Satara district].
3. Male pleonal somite 6 longer than broad 4
- Male pleonal somite 6 as long as broad or slightly broader 7
4. Carapace with gently convex lateral margins; G1 subterminal segment basally broad *G. rouxi* n. sp. [GOA: North Goa district; KARNATAKA: Uttara Kannada district].
- Carapace with strongly convex lateral margins; G1 subterminal segment basally narrow 5
5. First, second maxillipeds with short flagellum on exopod; G1 medially distinctly curved outwards, with terminal segment almost straight; vulvae in adult positioned apart from each other (VD/SW = *c.* 0.3), suborbicular in shape *G. rathbunae* Pati & Thackeray, 2018 [MAHARASHTRA: Kolhapur district].
- First, second maxillipeds with long flagellum on exopod; G1 almost straight, with terminal segment distally gently curved inwards; vulvae in adult relatively closely positioned (VD/SW = *c.* 0.2), subovate in shape 6
6. Epibranchial tooth visible as distinct notch; branchial regions rugose; frontal margin some distance from anterior margin of epistome, exposing antennular fossae; G1 terminal segment relatively shorter, *c.* 0.4 times length of subterminal segment; vulva in adult relatively smaller, occupying *c.* 0.3 times length of S6, positioned some distance from S5/S6 *G. botti* Pati & Thackeray, 2018 [MAHARASHTRA: Sindhudurg district].
- Epibranchial tooth indistinct; branchial regions smooth; frontal margin very close to anterior margin of epistome, hiding antennular fossae; G1 terminal segment relatively longer, *c.* 0.5 times length of subterminal segment; vulva in adult relatively larger, occupying *c.* 0.5 times length of S6, positioned close to S5/S6 *G. splendida* Pati, Thackeray & Khaire, 2016 [MAHARASHTRA: Sindhudurg district].
7. Frontal margin very close to anterior margin of epistome, hiding antennular fossae; G1 sigmoid-shaped or medially gently curved outwards 8
- Frontal margin some distance from anterior margin of epistome, exposing antennular fossae; G1 almost straight 9
8. Major chela of adult male with relatively slenderer palm, and gently concave ventral margin of fixed finger and distal half of palm; ambulatory legs relatively longer (P3 length/CL = *c.* 2.5); G1 terminal segment medially distinctly curved inwards *G. atropurpurea* Pati, Thackeray & Khaire, 2016 [GOA: South Goa district; MAHARASHTRA: Kolhapur and Sindhudurg districts].
- Major chela of adult male with relatively stouter palm, and strongly concave ventral margin of fixed finger and distal half of palm; ambulatory legs relatively shorter (P3 length/CL = *c.* 2.0); G1 terminal segment straight *G. hyacintha* Pati & Sharma, 2014 [MAHARASHTRA: Kolhapur district].
9. Male pleonal somite 6 quadrate, as long as broad; G1 with relatively slenderer terminal segment and relatively stouter subterminal segment; vulva in adult positioned some distance from S5/S6 *G. aurantiaca* Pati & Sharma, 2014 [MAHARASHTRA: Raigad district].
- Male pleonal somite 6 subquadrate, slightly broader than long; G1 with relatively stouter terminal segment and relatively slenderer subterminal segment; vulva in adult positioned close to S5/S6 *G. durrelli* n. sp. [MAHARASHTRA: Kolhapur and Satara districts].

Genus *Sahyadriana* Pati & Thackeray, 2018

Sahyadriana inopinata n. sp.
(Figs 3D; 6A-D; 7A-H)

Sahyadriana Pati & Thackeray, 2018: 46.

[urn:lsid:zoobank.org:act:A64D966D-A859-48C1-9949-092B1D7288EB](https://zoobank.org/act:A64D966D-A859-48C1-9949-092B1D7288EB)

TYPE SPECIES. — *Sahyadriana sahyadriensis* Pati & Thackeray, 2018, by original designation; gender feminine.

TYPE MATERIAL. — **Holotype.** India • ♂ (CW 10.29 mm, CL 7.86 mm, CH 4.47 mm, FW 4.16 mm); Maharashtra: Satara district: Dhobi Waterfall, Mahabaleshwar; 17°56'13"N, 73°38'45"E; alt. 1075 m; 30.VI.2018; Tejas Thackeray leg.; ZSI-WRC C.2015.



FIG. 6. — *Sahyadriana inopinata* n. sp., holotype ♂ (10.29 × 7.86 mm), ZSI-WRC C.2015: **A**, overall dorsal view; **B**, dorsal view of cephalothorax; **C**, frontal view of cephalothorax; **D**, overall ventral view. Scale bars: A, D, 5 mm; B, C, 2 mm.

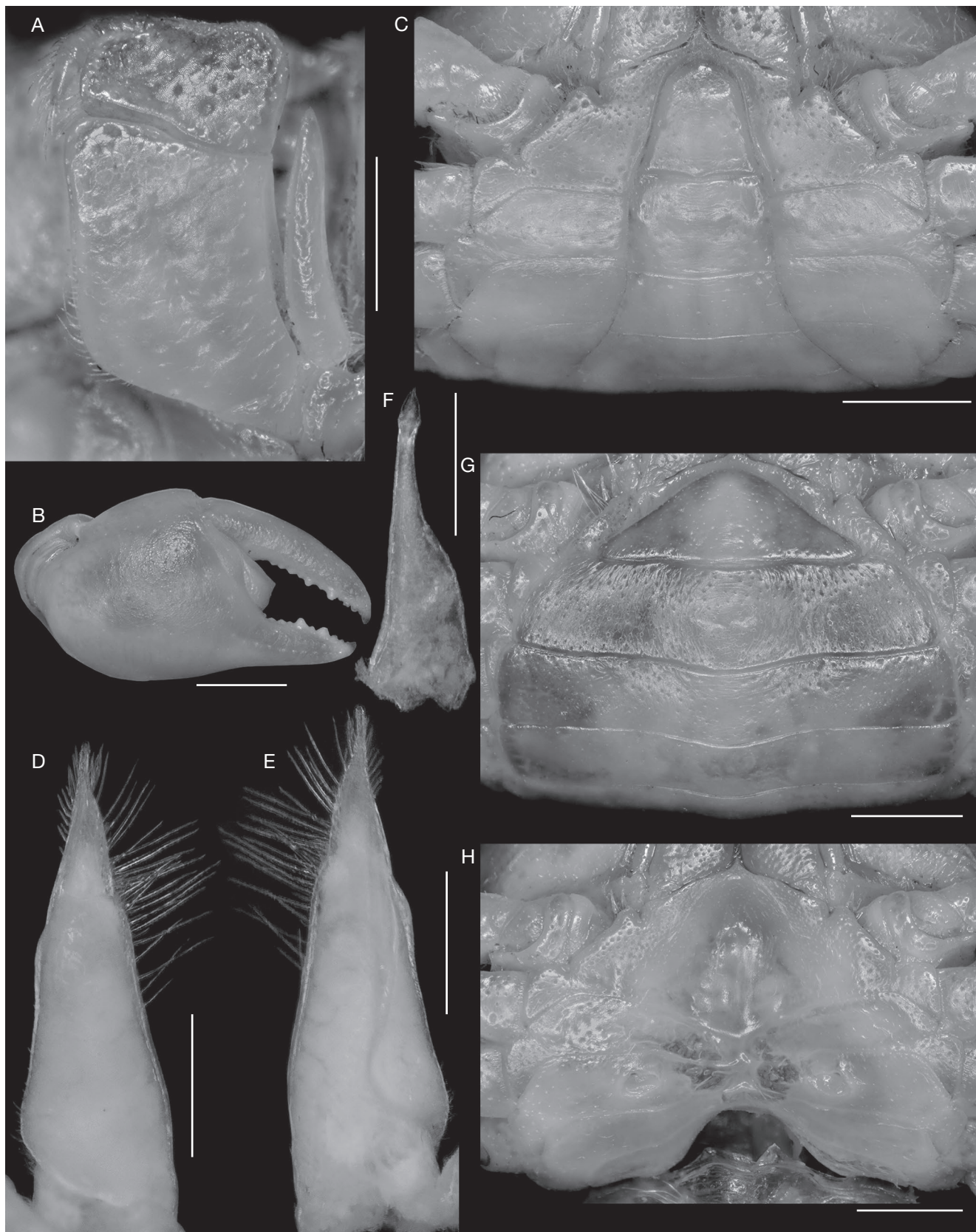


FIG. 7. — *Sahyadriana inopinata* n. sp., holotype ♂ (10.29 × 7.86 mm), ZSI-WRC C.2015 (A–F); paratype ♀ (11.93 × 9.05 mm), ZSI-WRC C.2016 (G, H): **A**, left third maxilliped; **B**, major or right chela (outer view); **C**, S1–S7, pleonal somites 4–6, and telson; **D**, right G1 (dorsal view); **E**, right G1 (ventral view); **F**, right G2; **G**, pleonal somites 4–6 and telson; **H**, S1–S8 showing vulvae. Scale bars: A, 1 mm; B, C, G, H, 2 mm; D–F, 0.5 mm.

Paratypes. India • ♂ (CW 10.30 mm, CL 7.89 mm, CH 4.55 mm, FW 4.14 mm); ♀ (CW 11.93 mm, CL 9.05 mm, CH 5.61 mm, FW 4.58 mm); same data as for holotype; ZSI-WRC C.2016 • 2 ♂ (CW 9.20–10.24 mm, CL 6.92–7.78 mm, CH 4.00–4.82 mm, FW 3.62–4.03 mm); 3 ♀ (CW 10.97–12.33 mm, CL 8.27–9.14 mm, CH 5.13–5.56 mm, FW 4.24–4.84 mm); same data as for holotype; ZSI-WRC C.2017.

TYPE LOCALITY. — India: Maharashtra: Satara district: Dhobi Waterfall, Mahabaleshwar; 17°56'13"N, 73°38'45"E; alt. 1075 m.

DIAGNOSIS. — Carapace in adult slightly broader than long (CW/CL = 1.3), moderately deep (CH/CL = 0.6); epibranchial tooth visible as relative distinct notch; branchial regions inflated; epistome posterior margin with strongly concave lateral lobes (Fig. 6A–C). Third maxilliped lacking flagellum on exopod (Fig. 7A). Chelipeds with pointed fingertips (Figs 6A, D; 7B). Ambulatory legs with densely setose dactylus and propodus (Fig. 6A, D). Male sternopleonal cavity long, extending beyond imaginary line joining bases of third maxillipeds (Figs 6D; 7C). Male pleon relatively broad, T-shaped; pleonal somite 5 with concave lateral margins; pleonal somite 6 subquadrate, slightly broader than long, subequal in length to telson, lateral margins convex (Figs 6D; 7C). Male telson short (Figs 6D; 7C). G1 stout, straight; terminal segment relatively less stout, proximal two-thirds stouter than distal third, inverted funnel-shaped, relatively long, *c.* 0.5 times length of subterminal segment; subterminal segment relatively slender (Fig. 7D, E). G2 very short, with very short distal segment (Fig. 7F). Female pleon in adult broadly subtriangular (Fig. 7G). Vulvae in adult positioned apart from each other (VD/SW = *c.* 0.3), each subovate in shape, relatively small, occupying *c.* 0.4 times length of S6, positioned some distance from S5/S6 (Fig. 7H).

ETYMOLOGY. — The species name is an adjective in the Latin nominative singular meaning unexpected, referring to the unexpected discovery of the species from the type locality of a congener, i.e., *S. triangulus* (Pati & Sharma, 2014).

COLOUR IN LIFE. — Crabs have chocolate brown coloured carapace and ambulatory legs, whereas their chelipeds are orangish brown (Fig. 3D). Their ventral surface is relatively paler.

ECOLOGICAL NOTES. — *Sahyadriana inopinata* n. sp. was found under cobblestones adjacent to a waterfall. The species dwells at higher altitude (1075 m above a.s.l.). The sympatric species, *S. triangulus* is so far known only from preserved specimens, with no information on its ecological requirements (Pati & Thackeray 2018).

GEOGRAPHICAL DISTRIBUTION. — *Sahyadriana inopinata* n. sp. is known only from the type locality (Dhobi Waterfall, Mahabaleshwar) in Satara district of Maharashtra, India. The type locality is situated in the Western Ghats.

REMARKS

Among congeners, *S. inopinata* n. sp. is most similar to *S. billyarjani* Pati & Thackeray, 2018 and the type species, *S. sahyadriensis*, due to strongly concave lateral lobes of the epistome posterior margin (Fig. 6C; see Pati & Thackeray 2018: figs 20B; 24B), the pointed fingertips of the chelipeds (Figs 6A, D; 7B; see Pati & Thackeray 2018: figs 20A, C, D; 24A, C, D), the relatively stouter, inverted funnel-shaped terminal segment of the G1 with the distal portion abruptly narrow (Fig. 7D, E; see Pati & Thackeray 2018: figs 20I–K, M; 24I–K), and the relatively slenderer subterminal segment of the G1 (Fig. 7D, E; see Pati & Thackeray 2018: figs 20I, K, M; 24I, K). *Sahyadriana inopinata* n. sp. is nevertheless distinguished from *S. billyarjani* and *S. sahyadriensis* by the relatively distinct notch between the

epibranchial tooth and the external orbital angle (Fig. 7A, B) (vs indistinct notch between the epibranchial tooth and the external orbital angle; see Pati & Thackeray 2018: figs 20A; 24A), the relatively slenderer and relatively longer terminal segment of the G1, i.e., *c.* 0.5 times the length of the subterminal segment (Fig. 7D, E) (vs relatively stouter and relatively shorter terminal segment of the G1, i.e., *c.* 0.3–0.4 times the length of the subterminal segment; see Pati & Thackeray 2018: figs 20I–K, M; 24I–K), and the subovate-shaped vulva, which is relatively smaller, occupying *c.* 0.4 times the length of the S6 and is positioned a clear distance from S5/S6 (Fig. 7H) (vs suborbicular-shaped vulva, which is relatively larger, occupying *c.* 0.5 times the length of the S6 and is positioned close to S5/S6; Pati & Thackeray 2018: figs 20O; 24N).

The strongly concave lateral lobes of the epistome posterior margin and the inverted-funnel shaped terminal segment of the G1 of *S. inopinata* n. sp. are also similar to those of *S. pilosipes* (Alcock, 1909) (Figs 6C; 7D, E; see Pati & Thackeray 2018: figs 22B, E, F; 23B, D, E). Both the species have a relatively broader male pleon with the concave lateral margins of the pleonal somite 5 (Figs 6D; 7C; see Pati & Thackeray 2018: figs 22C; 23C). Moreover, the G1 is stout and straight, with the terminal segment relatively longer (*c.* 0.5 times the length of the subterminal segment) and the subterminal segment relatively slenderer in *S. inopinata* n. sp. and *S. pilosipes* (Fig. 7D, E; see Pati & Thackeray 2018: figs 22E, F; 23D, E). *Sahyadriana inopinata* n. sp., however, is easily distinguished from *S. pilosipes* by the pointed fingertips of the chelipeds (Figs 6A, D; 7B) (vs broadly rounded or spoon-shaped fingertips of the chelipeds; see Pati & Thackeray 2018: figs 22C; 23C), the relatively stouter terminal segment of the G1, i.e., the proximal two-thirds stouter than the distal third (Fig. 7D, E) (vs relatively slenderer G1 terminal segment, i.e., the proximal half stouter than the distal half; see Pati & Thackeray 2018: figs 22E, F; 23D, E), and the subovate-shaped and relatively smaller vulva in adult that occupies *c.* 0.4 times the length of the S6 (Fig. 7H) (vs suborbicular-shaped and relatively larger vulvae in adult, occupying *c.* 0.5 times the length of the S6; see Pati & Thackeray 2018: fig. 23H).

Sahyadriana inopinata n. sp. need not be confused with the sympatric species, *S. triangulus*, because of the relatively distinct epibranchial tooth (Fig. 6A, B) (vs indistinct epibranchial tooth; see Pati & Thackeray 2018: fig. 28A), the straight terminal segment of the G1 (Fig. 7D, E) (vs distally distinctly curved terminal segment of the G1; see Pati & Thackeray 2018: fig. 28D, E), and the basally narrow subterminal segment of the G1 (Fig. 7D, E) (vs basally broad subterminal segment of the G1; see Pati & Thackeray 2018: fig. 28D, E).

Sahyadriana keshari n. sp. (Figs 3E; 8A–D; 9A–H)

[urn:lsid:zoobank.org:act:548CA624-C80A-48BF-86D0-19F9B835609E](https://doi.org/10.21203/rs.3.rs-1999999/v1)

TYPE MATERIAL. — **Holotype. India** • ♂ (CW 13.96 mm, CL 10.88 mm, CH 6.38 mm, FW 4.98 mm); Maharashtra: Nashik district: Bramhagiri, near Trimbak; 19°54'46"N, 73°31'4"E; alt. 1048 m; 17.VIII.2017; Tejas Thackeray leg.; ZSI-WRC C.2007.



FIG. 8. — *Sahyadriana keshari* n. sp., holotype ♂ (13.96 × 10.88 mm), ZSI-WRC C.2007: **A**, overall dorsal view; **B**, dorsal view of cephalothorax; **C**, frontal view of cephalothorax; **D**, overall ventral view. Scale bars: A, D, 10 mm; B, C, 5 mm.

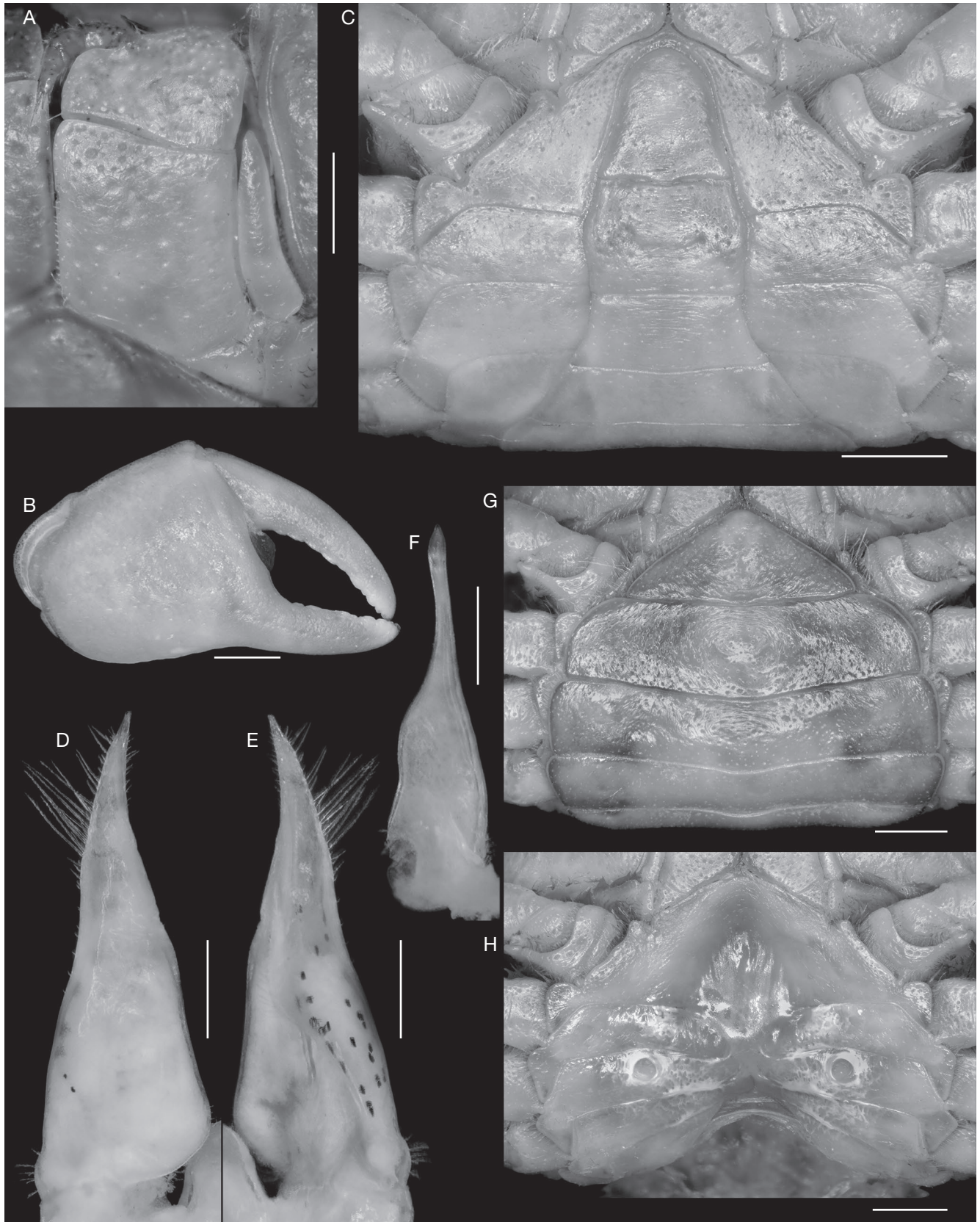


FIG. 9. — *Sahyadriana keshari* n. sp., holotype ♂ (13.96 × 10.88 mm), ZSI-WRC C.2007 (A–F); paratype ♀ (15.92 × 12.16 mm), ZSI-WRC C.2008 (G, H): A, left third maxilliped; B, major or right chela (outer view); C, S1–S7, pleonal somites 4–6, and telson; D, left G1 (dorsal view); E, left G1 (ventral view); F, left G2; G, pleonal somites 4–6 and telson; H, S1–S8 showing vulvae. Scale bars: A, 1 mm; B, C, G, H, 2 mm; D–F, 0.5 mm.

Paratypes. India • ♂ (CW 13.97 mm, CL 11.02 mm, CH 6.24 mm, FW 5.06 mm), ♀ (CW 15.92 mm, CL 12.16 mm, CH 6.35 mm, FW 5.74 mm); same data as for holotype; ZSI-WRC C.2008 • 5 ♂ (CW 12.44–14.18 mm, CL 9.55–11.01 mm, CH 5.58–7.16 mm, FW 4.46–4.94 mm), 5 ♀ (CW 12.11–15.53 mm, CL 9.39–11.73 mm, CH 6.14–7.23 mm, FW 4.44–5.44 mm); same data as for holotype; ZSI-WRC C.2009.

TYPE LOCALITY. — India: Maharashtra: Nashik district: Bramhagiri, near Trimbak; 19°54'46"N, 73°31'4"E; alt. 1048 m.

DIAGNOSIS. — Carapace in adult slightly broader than long (CW/CL = 1.3), moderately to strongly deep (CH/CL = 0.5–0.7); epibranchial tooth visible as relative distinct notch; branchial regions inflated; epistome posterior margin with gently concave lateral lobes (Fig. 8A–C). Third maxilliped lacking flagellum on exopod (Fig. 9A). Chelipeds with pointed fingertips (Figs 8A, D; 9B). Ambulatory legs with densely setose dactylus and propodus (Fig. 8A, D). Male sternopleonal cavity long, extending beyond imaginary line joining bases of third maxillipeds (Figs 8D; 9C). Male pleon relatively broad, T-shaped; pleonal somite 5 with concave lateral margins; pleonal somite 6 subquadrate, broader than long, subequal in length to telson, lateral margins strongly convex (Figs 8D; 9C). Male telson short (Figs 8D; 9C). G1 distinctly stout, almost straight; terminal segment relatively slender, subcylindrical, distally gently curved inwards, relatively short, *c.* 0.4 times length of subterminal segment; subterminal segment distinctly stout, triangular, distally relatively broad, with convex inner margin (Fig. 9D, E). G2 very short, with very short distal segment (Fig. 9F). Female pleon in adult broadly subtriangular (Fig. 9G). Vulvae in adult positioned apart from each other (VD/SW = *c.* 0.4), each suborbicular in shape, relatively large, occupying *c.* 0.5 times length of S6, positioned close to S5/S6 (Fig. 9H).

ETYMOLOGY. — The species name, derived from the Marathi language for orange coloured, refers to live colouration of the crab. The name is used as a Latin noun in apposition.

COLOUR IN LIFE. — Carapace, chelipeds, and ambulatory legs all are completely orange in colour (Fig. 3E). The orange colour on the ventral side of the carapace, however, is relatively faint.

ECOLOGICAL NOTES. — *Sahyadriana keshari* n. sp. dwells on the walls of high mountainous cliffs (1048 m above a.s.l.), which host ephemeral waterfalls. Crabs gather in large numbers during the daytime on these exposed walls between the downpour.

GEOGRAPHICAL DISTRIBUTION. — *Sahyadriana keshari* n. sp. is currently known only from Bramhagiri, an isolated high mountain of the Western Ghats in Nashik district of Maharashtra state, India. The new species is very likely to occur on the adjacent mountainous peak “Anjneri” of the same district because the second author (TT) once saw a dead crab of the species there.

REMARKS

The carapace of *S. keshari* n. sp. most resembles to that of *S. waghi* (Pati *in* Pati, Thackeray & Khair, 2016) mainly due to the relatively distinct notch between the epibranchial tooth and the external orbital angle (Fig. 8A, B; see Pati *et al.* 2016: fig. 11A; Pati & Thackeray 2018: fig. 29A), the gently concave lateral lobes of the epistome posterior margin (Fig. 8C; see Pati *et al.* 2016: fig. 11B; Pati & Thackeray 2018: fig. 29B), and the pointed fingertips of the chelipeds (Figs 8A, D; 9B; see Pati *et al.* 2016: fig. 11A, C, D; Pati & Thackeray 2018: fig. 29A, C). In the G1 structure, *S. keshari* n. sp. is most similar to *S. waghi* and *S. triangulus* because all have a distinctly stout G1, with the relatively slenderer, subcylindrical terminal

segment (Fig. 9D, E; see Pati & Sharma 2014: fig. 7E–G; Pati *et al.* 2016: fig. 12A–C; Pati & Thackeray 2018: figs 28D, E, H; 29D–G, I–K).

Both *S. keshari* n. sp. and *S. waghi* can be differentiated from *S. triangulus* by the relatively distinct notch between the epibranchial tooth and the external orbital angle (Fig. 8A, B; see Pati *et al.* 2016: fig. 11A; Pati & Thackeray 2018: fig. 29A) (vs indistinct notch between the epibranchial tooth and the external orbital angle in *S. triangulus*; see Pati & Sharma 2014: fig. 6A; Pati & Thackeray 2018: fig. 28A), the gently concave lateral lobes of the epistome posterior margin (Fig. 8C; see Pati *et al.* 2016: fig. 11B; Pati & Thackeray 2018: fig. 29B) (vs strongly concave lateral lobes of the epistome posterior margin in *S. triangulus*; see Pati & Sharma 2014: fig. 6B; Pati & Thackeray 2018: fig. 28B), the relatively shorter G1 terminal segment, *c.* 0.4 times the length of the subterminal segment, with the gently inwardly curved distal portion (Fig. 9D; see Pati & Thackeray 2018: figs 29I–K) (vs relatively longer G1 terminal segment, *c.* 0.5 times the length of the subterminal segment, with the distinctly outwardly curved distal portion in *S. triangulus*; see Pati & Sharma 2014: fig. 7E–G; Pati & Thackeray 2018: fig. 28D, E, H), and the convex inner margin of the G1 subterminal segment (Fig. 9D, E; see Pati *et al.* 2016: fig. 12A, B; Pati & Thackeray 2018: fig. 29D, F, I–K) (vs almost straight inner margin of the G1 subterminal segment in *S. triangulus*; see Pati & Sharma 2014: fig. 7E, F; Pati & Thackeray 2018: fig. 28D, E, H). *Sahyadriana keshari* n. sp. can be further separated from *S. waghi* by the relatively stouter G1 terminal segment (Fig. 9D) (vs relatively slenderer G1 terminal segment; see Pati *et al.* 2016: fig. 12A; Pati & Thackeray 2018: fig. 29D, I–K), the relatively broader distal portion of the G1 subterminal segment (Fig. 9D) (vs relatively narrower distal portion of the G1 subterminal segment; see Pati *et al.* 2016: fig. 12A; Pati & Thackeray 2018: fig. 29D, I–K), and the relatively larger adult vulva that occupies *c.* 0.5 times the length of the S6 and is positioned close to S5/S6 (Fig. 9H) (vs relatively smaller adult vulva that occupies *c.* 0.4 times the length of the S6 and is positioned a clear distance from S5/S6; see Pati & Thackeray 2018: fig. 29M).

Sahyadriana tamhini n. sp.
(Figs 3F–H; 10A–D; 11A–H)

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TYPE MATERIAL. — **Holotype. India** • ♂ (CW 9.36 mm, CL 7.37 mm, CH 4.14 mm, FW 3.63 mm); Maharashtra: Pune district: Tamhini Ghat; 18°28'37"N, 73°25'1"E; alt. 621 m; 25.VII.2017; V. D. Hegde *et al.* leg.; ZSI-WRC C.2010.

Paratypes. India • ♂ (CW 8.86 mm, CL 6.97 mm, CH 4.08 mm, FW 3.44 mm), ♀ (CW 9.02 mm, CL 6.96 mm, CH 3.74 mm, FW 3.53 mm); same data as for holotype; ZSI-WRC C.2011 • ♂ (CW 9.21 mm, CL 7.30 mm, CH 4.15 mm, FW 3.68 mm), ♀ (CW 11.59 mm, CL 8.80 mm, CH 5.68 mm, FW 4.38 mm); Maharashtra: Pune district: Tamhini Ghat; 18°28'22"N, 73°25'8"E; alt. 621 m; 11.VIII.2017; Tejas Thackeray leg.; ZSI-WRC C.2012 • ♂ (CW 8.77 mm, CL 6.74 mm, CH 3.74 mm, FW 3.49 mm), ♀ (CW 10.02 mm, CL 7.60 mm, CH 4.02 mm, FW 3.94 mm);



FIG. 10. — *Sahyadriana tamhini* n. sp., holotype ♂ (9.36 × 7.37 mm), ZSI-WRC C.2010: **A**, overall dorsal view; **B**, dorsal view of cephalothorax; **C**, frontal view of cephalothorax; **D**, overall ventral view. Scale bars: A, D, 5 mm; B, C, 2 mm.

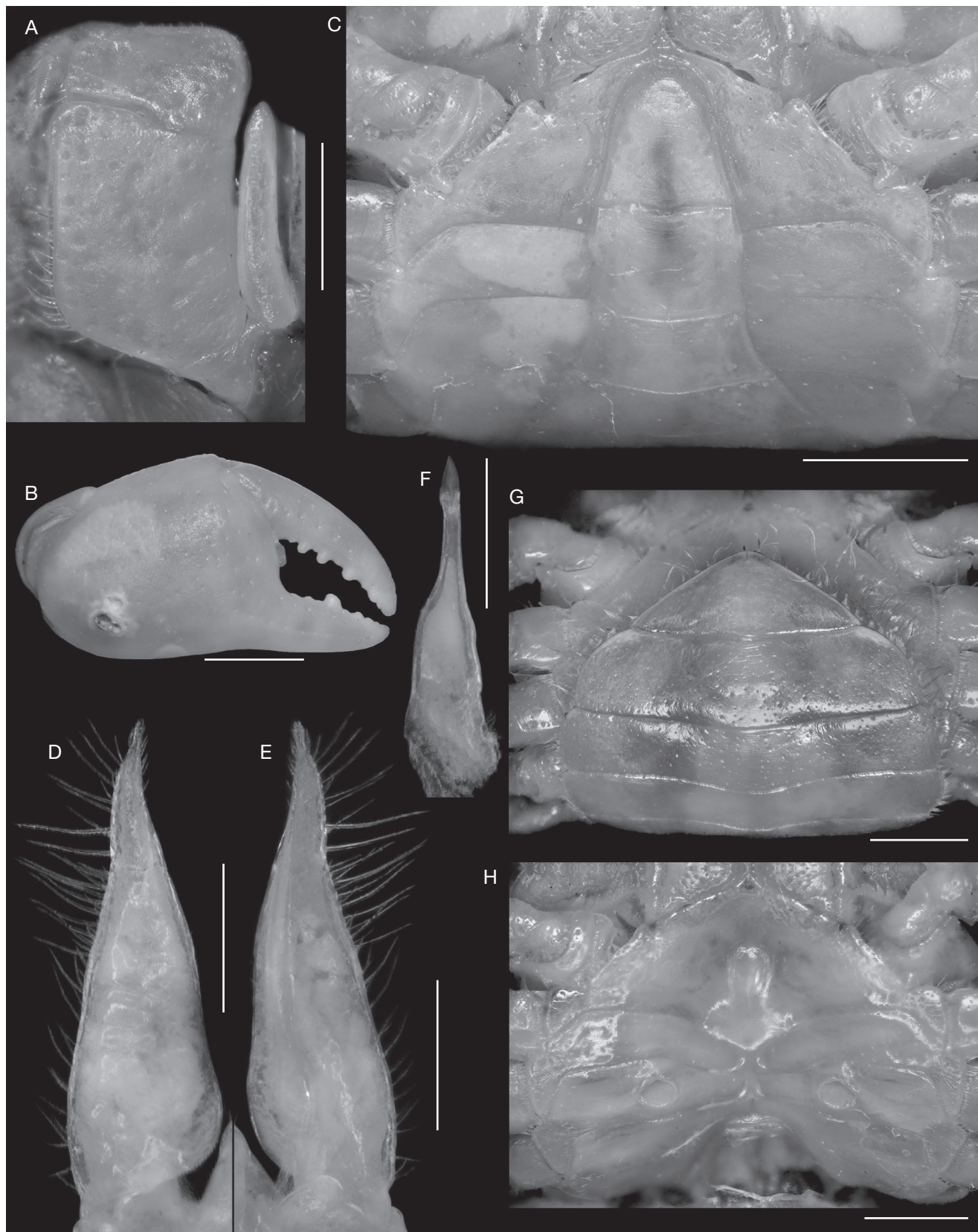


FIG. 11. — *Sahyadriana tamhini* n. sp., holotype ♂ (9.36 × 7.37 mm), ZSI-WRC C.2010 (A-F), paratype ♀ (11.59 × 8.80 mm), ZSI-WRC C.2012 (G, H): A, left third maxilliped; B, major or right chela (outer view); C, S1-S7, pleonal somites 4-6, and telson; D, left G1 (dorsal view); E, left G1 (ventral view); F, left G2; G, pleonal somites 4-6 and telson; H, S1-S8 showing vulvae. Scale bars: A, 1 mm; B, C, G, H, 2 mm; D-F, 0.5 mm.

Maharashtra: Pune district: Tamhini Ghat; 18°28'4"N, 73°24'46"E; alt. 584 m; same collection date and collector as for holotype; ZSI-WRC C.2013 • ♂ (CW 9.51 mm, CL 7.23 mm, CH 4.00 mm, FW 3.77 mm), ♀ (CW 11.06 mm, CL 8.11 mm, CH 4.83 mm, FW 4.17 mm); Maharashtra: Pune district: Tamhini Ghat; 18°28'1"N, 73°24'46"E; alt. 572 m; same collection date and collector as for ZSI-WRC C.2012 paratypes; ZSI-WRC C.2014.

TYPE LOCALITY. — India: Maharashtra: Pune district: Tamhini Ghat; 18°28'37"N, 73°25'1"E; alt. 621 m.

DIAGNOSIS. — Carapace in adult slightly broader than long (CW/CL = 1.3–1.4), moderately deep (CH/CL = 0.5–0.6); epibranchial tooth visible as relative distinct notch; branchial regions inflated; epistome posterior margin with strongly concave lateral lobes (Fig. 10A–C). Third maxilliped lacking flagellum on exopod (Fig. 11A). Chelipeds with pointed fingertips (Figs 10A, D; 11B). Ambulatory legs with densely setose dactylus and propodus (Fig. 10A, D). Male sternopleonal cavity long, extending beyond imaginary line joining bases of third maxillipeds (Figs 10D; 11C). Male pleon relatively broad, T-shaped; pleonal somite 5 with concave lateral margins; pleonal somite 6 subquadrate, broader than long, subequal in length to telson, lateral margins gently convex (Figs 10D; 11C). Male telson short (Figs 10D; 11C). G1 moderately stout, almost straight; terminal segment relatively slender, subcylindrical, distally distinctly narrow and gently curved inwards, relatively long, *c.* 0.5 times length of subterminal segment; subterminal segment relatively slender, with sinuous inner margin (Fig. 11D, E). G2 very short, with very short distal segment (Fig. 11F). Female pleon in adult broadly subtriangular (Fig. 11G). Vulvae in adult positioned apart from each other (VD/SW = *c.* 0.3), each suborbicular in shape, relatively large, occupying *c.* 0.5 times length of S6, positioned some distance from S5/S6 (Fig. 11H).

ETYMOLOGY. — The species is named after the type locality, Tamhini Ghat, a hotspot for wildlife in Maharashtra that hosts rich biodiversity and many endemic species, including that of the freshwater crabs. The species name is used as a Latin noun in apposition.

COLOUR IN LIFE. — The species shows colour variation. The carapace and ambulatory legs are generally saddle brown, with orange coloured chelipeds on the dorsal surface (Fig. 3F); the carapace and pereopods are relatively paler ventrally. Some crabs have orange coloured carapace and chelipeds but brownish ambulatory legs dorsally (Fig. 3G). Some individuals are completely brown (Fig. 3H), with a paler ventral surface of the carapace.

ECOLOGICAL NOTES. — *Sahyadriana tamhini* n. sp. was found under cobblestones near the base of rainfed cascades in an elevated

mountain (above 570 m altitude). Some individuals were also seen dwelling in the crevices of mountain cliffs. These crabs are very active during the monsoon season (June to September).

GEOGRAPHICAL DISTRIBUTION. — *Sahyadriana tamhini* n. sp. is known only from the type locality (Tamhini Ghat) in the Western Ghats of Pune district, Maharashtra, India.

REMARKS

Among congeners, *S. tamhini* n. sp., is most closely related to *S. alcocki* (Pati *in* Pati, Thackeray & Khair, 2016) mainly due to the strongly concave lateral lobes of the epistome posterior margin (Fig. 10C; see Pati *et al.* 2016: fig. 7B; Pati & Thackeray 2018: fig. 19B), the pointed fingertips of the chelipeds (Figs 10A, D; 11B; see Pati *et al.* 2016: fig. 7A–D; Pati & Thackeray 2018: fig. 19A, C), the moderately stout and almost straight G1, and the relatively slenderer, subcylindrical terminal segment of the G1, with the gently inwardly curved distal portion (Fig. 11D, E; see Pati *et al.* 2016: fig. 8A–C; Pati & Thackeray 2018: fig. 19D, E). These two species, however, can be differentiated by the terminal segment of the G1, which is distinctly narrow distally and relatively longer, *c.* 0.5 times the length of the subterminal segment in *S. tamhini* n. sp. (Fig. 11D, E), and gradually narrow distally and relatively shorter, *c.* 0.4 times the length of the subterminal segment in *S. alcocki* (see Pati *et al.* 2016: fig. 8A–C; Pati & Thackeray 2018: fig. 19D, E). Again, the shape of the subterminal segment of the G1 looks different; the inner margin of the G1 subterminal segment is sinuous in *S. tamhini* n. sp. (Fig. 11D, E), while it is almost straight in *S. alcocki* (see Pati *et al.* 2016: fig. 8A, B; Pati & Thackeray 2018: fig. 19D, E). Although both the species have a suborbicular-shaped adult vulva that is situated clearly away from S5/S6 (Fig. 11H; see Pati & Thackeray 2018: fig. 19H), the vulvae in adult are relatively closed positioned (VD/SW = *c.* 0.3) and relatively larger, occupying *c.* 0.5 times the length of the S6 in *S. tamhini* n. sp. (Fig. 11H), whereas they are clearly positioned apart from each other (VD/SW = *c.* 0.4) and relatively smaller, occupying *c.* 0.4 times the length of the S6 in *S. alcocki* (see Pati & Thackeray 2018: fig. 19H).

KEY TO SPECIES OF *SAHYADRIANA* PATI & THACKERAY, 2018 (modified from Pati & Thackeray 2018)

1. Chelipeds with broadly rounded or spoon-shaped fingertips; branchial regions relatively less inflated 2
- Chelipeds with pointed fingertips; branchial regions relatively more inflated 3
2. G1 terminal segment relatively slenderer, inverted funnel-shaped, long, *c.* 0.5 times length of subterminal segment, distal half abruptly narrow; vulva in adult relatively larger, occupying *c.* 0.5 times length of S6, positioned some distance from S5/S6 *S. pilosipes* (Alcock, 1909) [MAHARASHTRA: Satara district].
- G1 terminal segment relatively stouter, cone-shaped, short, *c.* 0.3 times length of subterminal segment, distal portion gradually narrow; vulva in adult relatively smaller, occupying *c.* 0.4 times length of S6, positioned close to S5/S6 *S. thackerayi* (Pati *in* Pati, Thackeray & Khair, 2016) [MAHARASHTRA: Ratnagiri district].
3. Epistome posterior margin with gently concave lateral lobes 4
- Epistome posterior margin with strongly concave lateral lobes 7

4. Epibranchial tooth indistinct; G1 terminal segment relatively longer, *c.* 0.6–0.7 times length of subterminal segment; G1 subterminal segment relatively slenderer 5
- Epibranchial tooth visible as relative distinct notch; G1 terminal segment relatively shorter, *c.* 0.4 times length of subterminal segment; G1 subterminal segment relatively stouter 6
5. Male pleon relatively broader, with subquadrate pleonal somite 6, i.e., broader than long; G1 relatively stouter, with relatively stouter terminal segment; vulvae in adult positioned apart from each other ($VD/SW = c. 0.3$) close to S5/S6 *S. pachyphallus* Pati & Thackeray, 2018 [MAHARASHTRA: Kolhapur district].
- Male pleon relatively narrower, with quadrate pleonal somite 6, i.e., as long as broad; G1 relatively slenderer, with relatively slenderer terminal segment; vulvae in adult relatively closely positioned ($VD/SW = c. 0.2$) some distance from S5/S6 *S. tenuiphallus* Pati & Thackeray, 2018 [MAHARASHTRA: Ratnagiri district].
6. G1 terminal segment relatively stouter; G1 subterminal segment with relatively broader distal portion; vulva in adult relatively larger, occupying *c.* 0.5 times length of S6, positioned close to S5/S6 *S. keshari* n. sp. [MAHARASHTRA: Nashik district].
- G1 terminal segment relatively slenderer; G1 subterminal segment with relatively narrower distal portion; vulva in adult relatively smaller, occupying *c.* 0.4 times length of S6, positioned some distance from S5/S6 *S. waghi* (Pati *in* Pati, Thackeray & Khaire, 2016) [MAHARASHTRA: Ahmednagar and Pune districts].
7. G1 terminal segment relatively slenderer, subcylindrical 8
- G1 terminal segment relatively stouter, cone-shaped or inverted funnel-shaped 10
8. Epibranchial tooth indistinct; G1 relatively stouter, with distally distinctly curved outwards terminal segment and basally broad subterminal segment *S. triangulus* (Pati & Sharma, 2014) [MAHARASHTRA: Satara district].
- Epibranchial tooth visible as relative distinct notch; G1 relatively slenderer, with distally gently curved inwards terminal segment and basally narrow subterminal segment 9
9. G1 terminal segment gradually narrow distally, relatively shorter, *c.* 0.4 times the length of the subterminal segment; G1 subterminal segment with almost straight inner margin; vulvae in adult positioned apart from each other ($VD/SW = c. 0.4$), relatively smaller, occupying *c.* 0.4 times length of S6 *S. alcocki* (Pati *in* Pati, Thackeray & Khaire, 2016) [MAHARASHTRA: Satara district].
- G1 terminal segment distinctly narrow distally, relatively longer, *c.* 0.5 times the length of the subterminal segment; G1 subterminal segment with sinuous inner margin; vulvae in adult relatively closely positioned ($VD/SW = c. 0.3$), relatively larger, occupying *c.* 0.5 times length of S6 *S. tamhini* n. sp. [MAHARASHTRA: Pune district].
10. G1 terminal segment cone-shaped, with distal portion gradually narrow; G1 subterminal segment relatively stouter *S. woodmasoni* Pati & Thackeray, 2018 [MAHARASHTRA: Satara district].
- G1 terminal segment inverted funnel-shaped, with distal portion abruptly narrow; G1 subterminal segment relatively slenderer 11
11. Epibranchial tooth visible as relative distinct notch; G1 terminal segment relatively slenderer, relatively longer, *c.* 0.5 times length of subterminal segment; vulva in adult subovate in shape, relatively smaller, occupying *c.* 0.4 times length of S6, positioned some distance from S5/S6 *S. inopinata* n. sp. [MAHARASHTRA: Satara district].
- Epibranchial tooth indistinct; G1 terminal segment relatively stouter, relatively shorter, *c.* 0.3–0.4 times length of subterminal segment; vulva in adult suborbicular in shape, relatively larger, occupying *c.* 0.5 times length of S6, positioned close to S5/S6 12
12. Male pleonal somite 5 and 6 with concave and sinuous lateral margins, respectively; G1 terminal segment relatively shorter, *c.* 0.3 times length of subterminal segment; vulvae in adult positioned apart from each other ($VD/SW = c. 0.4$) *S. billyarjani* Pati & Thackeray, 2018 [MAHARASHTRA: Kolhapur and Sindhudurg districts].
- Male pleonal somites 5 and 6 with almost straight lateral margins; G1 terminal segment relatively longer, *c.* 0.4 times length of subterminal segment; vulvae in adult positioned relatively close to each other ($VD/SW = c. 0.3$) *S. sahyadriensis* Pati & Thackeray, 2018 [MAHARASHTRA: Kolhapur, Ratnagiri and Satara districts].

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