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A new record of *Rhoenanthus* (*Potamanthindus*) *sapa* Nguyen and Bae, 2004 (Ephemeroptera, Potamanthidae) from India

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ABSTRACT: As part of ongoing exploration of the mayflies in the hill streams of northeast India, *Rhoenanthus* (*Potamanthindus*) *sapa* Nguyen and Bae 2004 was reported as a new record based on larval collections from Meghalaya, India. © 2024 Association for Advancement of Entomology

KEY WORDS: Burrowing mayfly, hill streams, larva, Meghalaya

The burrowing mayfly family Potamanthidae is widely distributed throughout the Holarctic and Oriental regions. The family contains 25 species belonging to four genera worldwide (Bae and McCafferty, 1991; Nguyen and Bae, 2004; Kwanboon *et al.,* 2021; Li and Zhou, 2022). Bae and McCafferty (1991) presented a detailed account of the potamanthid phylogeny and biogeography, and this Laurasian family comprise of four genera, *Rhoenanthus*, *Anthopotamus*, *Potamanthus*, and *Stygifloris. Anthopotamus* is Nearctic, and the others are found in the Oriental region. In India, only three species are recorded: *Potamanthus subcostalis* Navas, 1931 from Maharashtra; *R.* (*Rhoenanthus*) *distafurcus* Bae and McCafferty, 1991 from Kerala; and *R.* (*R.*) *tungaiensis* Balasubramanian *et al.,* 2019 from Karnataka. In the present study, larvae of the subgenus *Potamanthindus* Lestage, 1931, represented by the species *R.* (*Potamanthindus*) *sapa* Nguyen and Bae, 2004 from Meghalaya, were collected from streams and rivers of Meghalaya, by kick-net sampling and hand picking by used brushes. Specimens were stored in ethanol (95%). Photographs were taken with a Leica M205A microscope. Specimens were deposited in National Zoological Collections (NZC) at Zoological Survey of India (ZSI), Kolkata, India.

The larvae of the genus *Potamanthus* were easily distinguished from those of the genus *Rhoenanthus* or *Anthopotamus* by their short tusks, weakly setaceous mouthparts and weakly developed bipectinate-hairlike setae along anterior margin of

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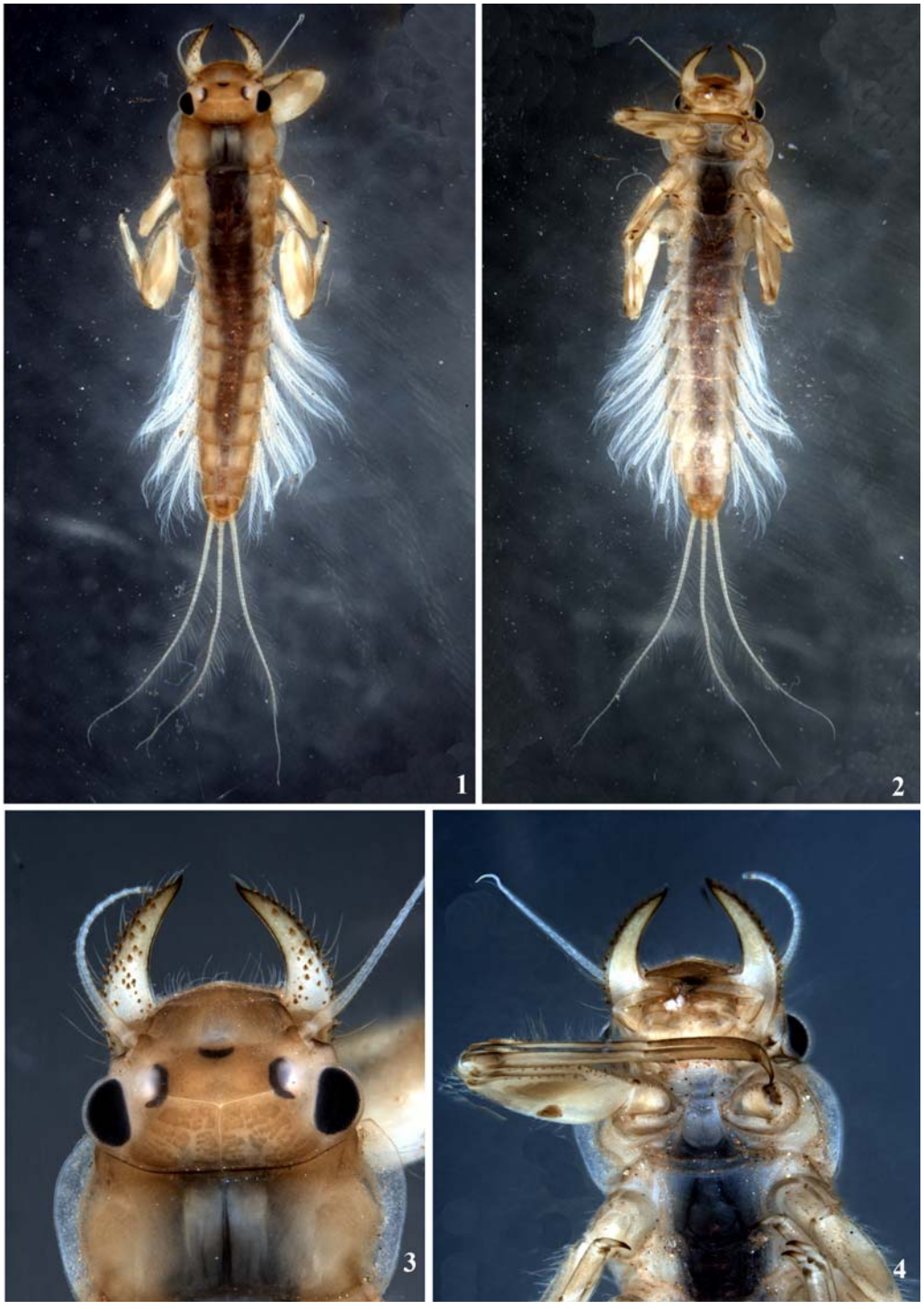

Figs. Larva of *Rhoenanthus (Potamanthindus) sapa* Nguyen & Bae, 2004.
1. Dorsal view, larval habitus; 2. Ventral view, larval habitus; 3. Dorsal view, head and pronotum; 4. Ventral view, anterior portion of body

foretibiae. The larvae of the genus *Rhoenanthus* differentiated from the larvae of the genus *Potamanthus* by their long mandibular tusks and setaceous mouthparts. The larvae of the genus *Rhoenanthus* were easily distinguished from those of *Anthopotamus*, which also possess well-developed tusk, by their relatively long foretibiae and the presence of bipectinate-hair like setae of the dorsal and lateral foretibiae (Bae and McCafferty, 1991). *Rhoenanthus* has two subgenera viz., *Rhoenanthus* s.s. and *Potamanthindus*. Larvae of subgenus *Rhoenanthus* s.s. were distinguished from subgenus *Potamanthindus* by their terminally spined mandibular tusks that appear forked and slender maxillary palpi; the adults were distinguished by MP2 of forewings being basally connected to CuA and by their dorsoventrally flattened, deeply furcated and apically rounded penes. Larvae of subgenus *Potamanthindus* were distinguished from *Rhoenanthus* s.s. by the absence of a large, subapical, lateral spine on mandibular tusks and also possess relatively thick maxillary palpi; the adults were distinguished by MP_2 of forewings being basally connected to MP_1 and by their basally somewhat cylindrical, Y-shaped, and apically notched penes (Bae and McCafferty, 1991). The subgenus *Potamanthindus* consisted of six species viz., *R.* (*Potamanthindus*) *coreanus* (Yoon and Bae, 1985); *R.* (*P.*) *hunanensis* (You and Gui, 1995); *R.* (*P.*) *magnificus* Ulmer, 1920; *R.* (*P.*) *obscurus* Navas, 1922; *R.* (*P.*) *sapa* Nguyen and Bae, 2004; and *R.* (*P.*) *youi* (Wu and You, 1986).

Rhoenanthus* (*Potamanthindus*) *sapa Nguyen & Bae, 2004 (Figs. 1–4)

Materials examined: 2 larvae, INDIA, Meghalaya, East Khasi Hills, Khrang village, Wankwar River, 25.32481 N, 91.77519 E, 1658 m, 02.iii.2016, coll. E. Eyarin Jehamalar (Reg. No. 5143/H13).

Diagnosis: *R.* (*P.*) *sapa* could be distinguished from other species of *Rhoenanthus* by the following combination of characters: In larvae (i) foretibiae relatively short (ca. 1.1x length of fore femora, 1.9x length of fore tarsi) and their filtering setae relatively short and weakly developed (Figs. 2, 4); (ii) gradually attenuated and moderately arched (27.7°) mandibular tusks that possess mixed simple-stout and hairlike setae throughout dorsal and lateral surfaces (Figs. 1, 3); in adults (iii) forewings of female (Figs. 3, Nguyen and Bae 2004) lightly stained brown in costal and central areas and (iv) basal R1 of hind wings strongly bent to costal area and costal projection acute (Fig. 4, Nguyen and Bae 2004). *R.* (*Potamanthindus*) *sapa* was originally described from Vietnam based on larvae and female adult by Nguyen and Bae (2004) and Han *et al.* (2021) reported from China, with details of distribution, habitat, biology and phylogenetic characters of this species. Based on the larval collections of Ephemeroptera from northeast India, a new record of *R.* (*P.*) *sapa* has been established, which is a significant range extension to the distributional range of this species.

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REFERENCES

Bae Y.J. and McCafferty W.P. (1991) Phylogenetic systematics of the Potamanthidae (Ephemeroptera). Transactions of the American Entomological Society 117(3–4): 1–143.

Balasubramanian C., Muthukatturaja M. and Anbalagan S. (2019) A new mayfly species

of *Rhoenanthus* (Ephemeroptera: Potamanthidae) from Peninsular India. Zootaxa 4664(2): 293–300.

Han N.A., Zhang M. and Zhou C.F. (2021) The genus *Rhoenanthus* Eaton, 1881 in China with the redescription of *R. hunanensis* You & Gui, 1995 (Ephemeroptera: Potamanthidae). Zootaxa 4903 (4): 563–577.

Nguyen V.V. and Bae Y.J. (2004) Descriptions of *Rhoenanthus sapa*, new species, and larval stage of *R. magnificus* Ulmer (Ephemeroptera: Potamanthidae) from Vietnam. Aquatic Insects 26(1): 9–17.

Kwanboon S., Sartori M. and Boonsoong B. (2021) Behningiidae and Potamanthidae (Insecta, Ephemeroptera) in Thailand. ZooKeys 1067: 57–82.

Li W. and Zhou C. (2023) The first description of the nymph *Potamanthodes macrophthalmus* You, 1984 and reinstatements of the genera *Potamanthodes* Ulmer, 1920 and *Stygifloris* Bae, McCafferty and Edmunds, 1990 (Ephemeroptera: Potamanthidae). Aquatic Insects 44:1: 24-35.

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