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A new species to the genus *Nyctiophylax* Brauer (1865) (Trichoptera: Polycentropodidae) from India

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Abstract

This is another addition to the knowledge of the caddisfly fauna of India. Here a new species *Nyctiophylax malickyii* sp. nov. is described and illustrated from Himachal Pradesh. The genus is now represented by 4 species from India.

Keywords: Himalaya, India, Polycentropodidae, Trichoptera

Introduction

Based on *Nyctiophylax sinensis* from China, *Nyctiophylax* as a genus was established by Brauer (1865). This genus includes 120 extant species and 23 fossil species worldwide, with more than half of the extant species occurring in the Oriental region alone (60 species) Morse (2018). This genus though widely distributed in the South East Asia is poorly documented from Indian region. Currently, the Indian species of the genus *Nyctiophylax* includes only 3 species *Nyctiophylax abruptus* Banks (1913), *Nyctiophylax antaios* Malicky (1997) and *Nyctiophylax dhauli* Oláh and Johanson (2010). Banks species is based on the female specimens from Chapra now in Bihar. Malicky (1997) described a new species from Andaman Islands only after 84 years, whereas Oláh and Johanson (2010) described a new species from Orrisa. So to improve our knowledge of this genus from India, more expeditions are required so that the information about this genus can be updated with the discovery of new species as well as new records. So with this addition of one new species the genus is currently represented by 4 species from India. The type specimensare deposited in the National Zoological Collection (NZC) of Zoological Survey of India (ZSI), Kolkata.

Material and Methods

In this study the adult specimens were collected during the month of September 2017 with the help of UV light placed near the edges of streams for 2-3 hours beginning at dusk of the Himachal Pradesh. The specimens were preserved in 80% ethyl alcohol with a drop of glycerol added. Pertinent collection and locality data were recorded. Various morphological characters such as labial palps, antennae, setal warts, legs, wing maculation and venation, and genitalic structures were examined. For studying the genitalic characters, the genitalia of one of the male specimens is dissected out and put in 10% KOH solution overnight for maceration. After clearing the genitalia were put in the 80% ethyl alcohol for observation. Furthermore, it is cleared with clove oil for crystal clear view of the sclerotized structures. The illustration was prepared using the Rescholar® zoom stereoscopic binocular microscope (with maximum magnification of 160X) fitted with an ocular grid in one of the eyepiece. The inking of the final drawings was done with the Rotring® Black ink. The final illustrations were scanned at 600 dpi greyscale and mounted onto the plates in the Adobe© Photoshop© 7.0. The genitalic terminology follows that of Morse *et al.* (2012). All the specimens are preserved in 80% alcohol and are deposited in the NZC of ZSI, Kolkata.

Systematics

Genus ***Nyctiophylax*** Brauer, 1865:419
Type species-*Nyctiophylax sinensis* Brauer, 1865: 419
Nyctiophylax malickyii sp. nov. (Figs. 1-8)

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Description

Adult ♂, overall body color in alcohol golden yellowish; head and antennae yellowish, pronotum brown, meso and metanotum slightly dark brown. Length from tip of head to apices of the folded forewings about 7.75 mm. length of each forewing 6 mm.

Male genitalia (Figures 1-8)

Dorsal view is tergum IX membranous, almost transparent, and rounded distally. Sternum IX quadrate in lateral view, posterolateral margin vertical and sinuous, and posterior margin with deep excision in ventral view. Tergum X semi-sclerotized, setose, deeply divided apicomesally. Preanal appendages, each almost equal to tergum X, each broad quadrate lobe like, with paired meso ventral and dorsal process; each meso ventral process curved caudoventrad, broad at the base, each gradually reduce to a narrow pointed apex in lateral view; in ventral view apices extend mesad beneath phallus; each dorsal process of preanal appendage deeply inserted under tergum IX smaller than the meso ventral process. Inferior appendages, each, with acute posterior baso ventral process, half as long as main body, main body of appendage slender, setose and acute apically. Phallus with sclerotized phallobase, phallobase about half as long as phallicata, with pair of short blunt lobes, each paramere longer than phallus, arising at the anterior end of phallobase, curved dorsad, phallicata membranous dorsally, without any spines.

Material examined

Holotype, ♂, India: Himachal Pradesh, Panchpulla, 3 2°31'41.1"N, 75°59'25.2"E, 2,100 m, 28-ix-2017, (Pandher), NZC. Paratype: 1 ♀, data same as of holotype.

Diagnosis

This species is very similar to the *Nyctiophylax tonngachang* Malicky and Chantramongkol (1993), *Nyct. khaosokensis* Malicky and Chantramongkok (1993) both reported from Thailand and *Nyct.antenor* Malicky (1997) reported from Nepal in general appearance of the male genitalia. But it is more similar to *Nyct. antenor* in lateral view of male genitalia (similar shape of sternum IX, shape of parameres, presence of short blunt lobes in phallus). But the preanal appendages are broad lobe like, inferior appendages directed dorsad, tergum IX distally rounded in dorsal view in *Nyct. malickyii* sp. nov. Whereas, preanala appendages are broad basally but narrow apically, inferior appendages directed posterad, tergum IX bifid with conical apex in dorsal view in *Nyct. antenor* Malicky (1997).

Acknowledgements

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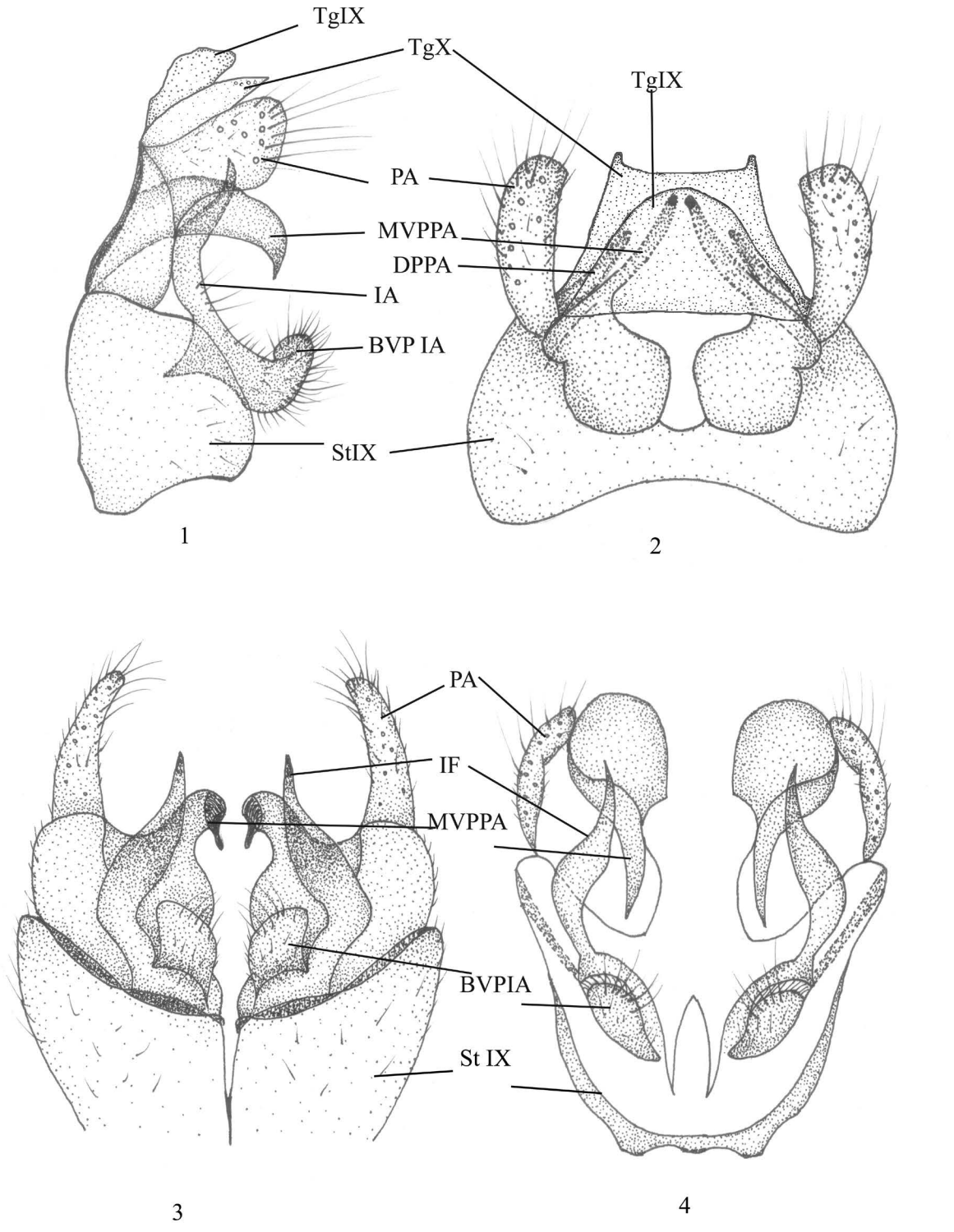
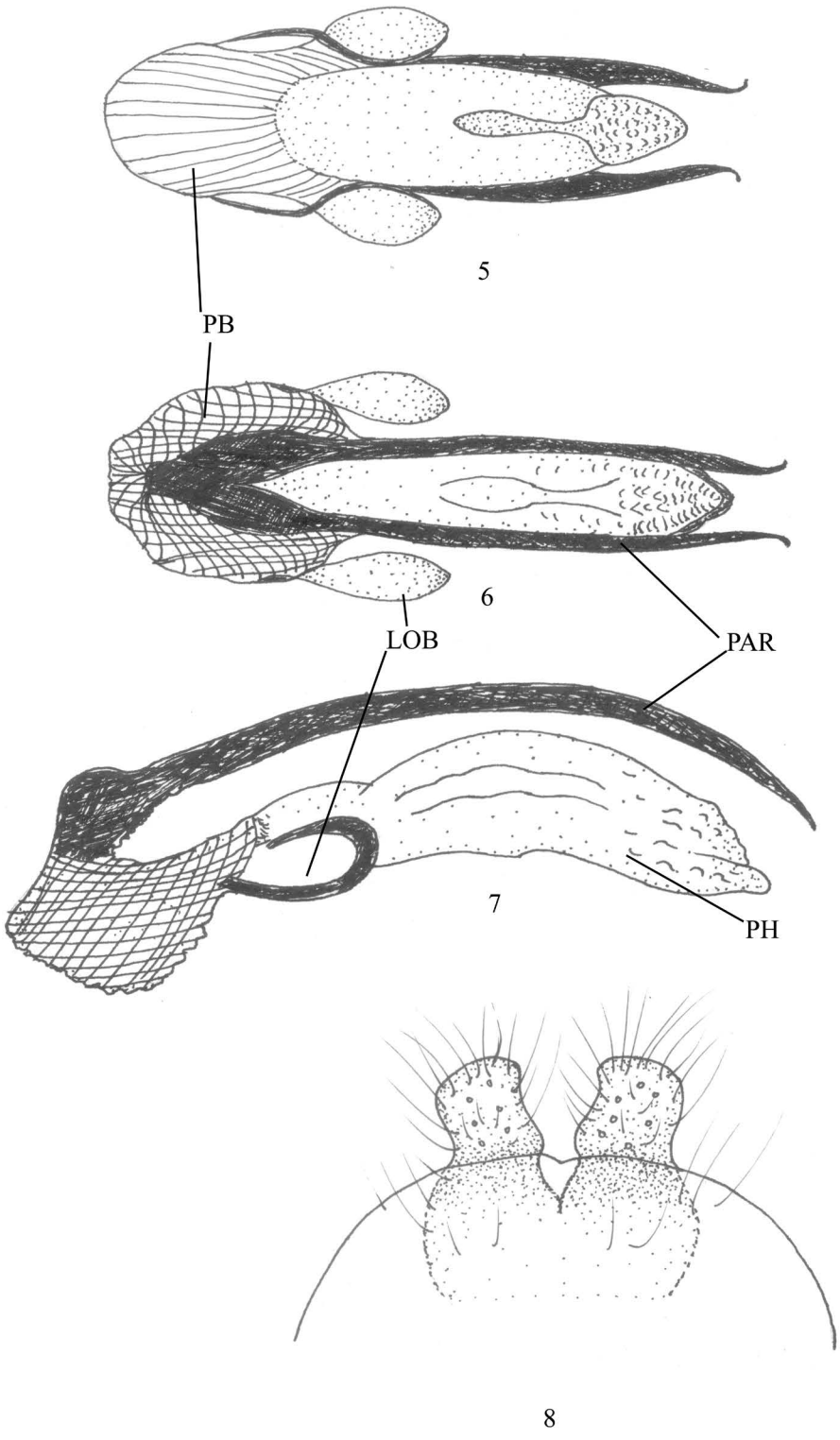
Plate 1



Figures 1-4. Male genitalia of *Nyctiophylax malickyii* sp.nov. 1. Lateral view, 2. Dorsal view, 3. Ventral view, 4. Caudo-Ventral View. (BVPIA- Basoventral process of Preanal appendage, DPPA-Dorsal process of preanal appendage, IA- Inferior Appendage, MVPPA- Meso ventral Process of Preanal appendage, PA- Preanal appendage, St IX- Sternite IX, Tg IX- Tergite IX, Tg X- Tergite X).

Plate 2



Figures 5-8. Male genitalia of *Nyctiophylax malickyi* sp. nov. 5. Phallus, ventral view, 6. Phallus dorsal view, 7. Phallus, Lateral view, 8. Baso ventral process of Inferior appendage, ventral view. (LOB- Lobes, PAR- Paramere, PB- Phallobase, PH-phallus).