

A new species of *Rhyacophila* from Nepal (Trichoptera: Rhyacophilidae)

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Abstract. A new species of the *Rhyacophila yishepa* Group (Trichoptera: Rhyacophilidae) *Rhyacophila biguensis* sp. n. from Nepal is described and illustrated with drawings of the genitalia and habitus photo.

Keywords. Caddisflies, *yishepa* group, *Rhyacophila biguensis* new species, Nepal.

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Introduction

The Oriental Biogeographic Region in Nepal is rich in Trichoptera species where the genus *Rhyacophila* is one of the most diverse genera of Trichoptera (49 species, Kiss, Malicky 2003, Kiss 2013, Mattern 2015, Morse 2016). Schmid (1970) listed five species (*R. bicolor* Kimmins 1952, *R. churongpa* Schmid 1970, *R. kyimdongpa* Schmid 1970, *R. marpa* Schmid 1970 and *R. yishepa* Schmid 1970) in his *Rhyacophila yishepa* Group which he placed in his „3. Divaricata Branch”. These five species were illustrated by Kimmins (1952) and Schmid (1970). He also outlined the distributions of these 5 species.

Materials and methods

Specimens were captured by light traps and were stored in 70% ethanol. The holotype male and the allotype female posterior half of the abdomen was cleared in 20% lactic acid, and the phallic apparatus everted in the male (Blahnik & Holzenthal 2004). Then the dissected genitalia were placed in ethanol for stereomicroscopic examination (Nikon, SMZ-10-20x) and sketched. For the identification of species the works of Kimmins (1952), Ross (1956), Schmid (1970), Malicky (2010) and Kiss & Malicky (2003), Kiss (2013) were consulted. The terminology follows that of Schmid (1970) and Oláh & Johanson (2008). The holotype of the new species is deposited in the Mátra Museum, H-3200 Gyöngyös, Kossuth L. u. 40. Hungary. The abbreviations used in the text and figures correspond with those of Ross (1956) and Schmid (1970).

Species description

Rhyacophila biguensis new species | Figs 1–5.

Type material – Holotype: ♂, Nepal, Mt. Kalinchok, 5 km W of Bigu, 2300 m elevation, by light trapping, 03 July 1997, leg. Márton Hreblay and Krisztina Csák (gen. prep. No. 128, Ottó Kiss, in coll. Mátra Museum, H-Gyöngyös).

Paratypes: 2 ♂♂, with holotype data (one of the males dissected: gen. prep. No. 128, Ottó Kiss, in coll. Ottó Kiss).

Description – Male (in ethanol, n=3, Fig. 5). Body length 4.1–5.0 mm, length of each forewing 5.0–6.0 mm, width of each forewing 2.1–2.4 mm, length of each antenna 4.5–6.1 mm. Body, antennae, palpi, wings, abdomen and legs yellow. Genitalia (Figs 1–4). Apicodorsal lobe of segment IX (a.l.IX., Figs 1–2) with short, apical end, hooked in lateral and dorsal view. Segment X (X., Figs 1–2) with long extension, apical part triangular, narrower in mid-area, proximate part basically wide in lateral view, cone shaped in dorsal view. Dorsal appendage (d. app., Figs 1, 3) of phallic apparatus with extended finger-like shape, anterior dorsal edge humped, narrowing at base in lateral view. Anal sclerites not evident.

Phallicata (ph., Figs 1, 3–4) tubular and long, narrowing apically with end turning down-wards in lateral and ventral view. Ventral process (v.pr., Figs 1, 3) long with ribbon like membrane, longer than phallicata, apical end bending upwards slightly and becoming rounded in lateral view. Parameres (par., Figs 1, 3) moderately long with tapering spikes distally in lateral view. Apical band (a.b., Figs 1, 3) short with narrow vertical extension, dorsal end with left curvature in lateral view. First segment of each inferior appendages (f.s., Figs 1, 4) trapezoidal, proximal margin taller than distal margin, dorsal and ventral edges slightly curved, length consistent with phallicata in lateral view and ventral view; second segment of inferior appendages (s.s., Figs 1, 4) quadrangle of moderate length, proximal edge shorter than distal, ventral edge hollowed, proximal part the dorsal edge with convex arch, distal part hollowed, peak part rounded in lateral and ventral view, apical edge with four short spines in ventral view.

Differential diagnosis. This new species is similar to *Rhyacophila bicolor* Kimmins 1952 (p. 533, fig. 33) and *Rhyacophila kyimdongpa* Schmid 1970 (p. 129, plate XXXI, figs 12–15) in the *R. yishepa* Group. This contains 5 species recorded from India (Sikkim, Khasi Hills, Garhwal, Manipur, Kameng) but differs from them in that.

1. Segment X triangular in dorsal view (not, triangular as in *R. bicolor*).
2. Anal sclerite unknown (minor bulge as in *R. bicolor* and egg form in *R. kyimdongpa*).
3. The distal end of the phallicata is a long tube, narrowing apically and the end curves downward (not, pointed as in *R. bicolor* and straight as in *R. kyimdongpa*).
4. Ventral process is a long ribbon-like membrane, longer than the phallicata (not, short as in *R. bicolor* and *R. kyimdongpa*).
5. Dorsal appendage of phallic apparatus is a finger-like extension, dorsal edge

Figures 1–4. *Rhyacophila biguensis* new species male holotype genitalia 1L, lateral view; 2D, apicodorsal lobe of segment IX, X, dorsal view; 3L, phallic apparatus, lateral view; 4V, first segment and second segment, ventral view; Abbreviations: a. b. = apical band; a.l.IX. = apical lobe of segment IX; end. = endotheca; d. app. = dorsal appendage; f.s. = first segment of paired inferior appendages; par. = paired parameres; ph. = phallicata; phal. = phallosome; s. s. = second segment of paired inferior appendages; v. proc. = ventral process; IX, X. = segment IX.; segment X.

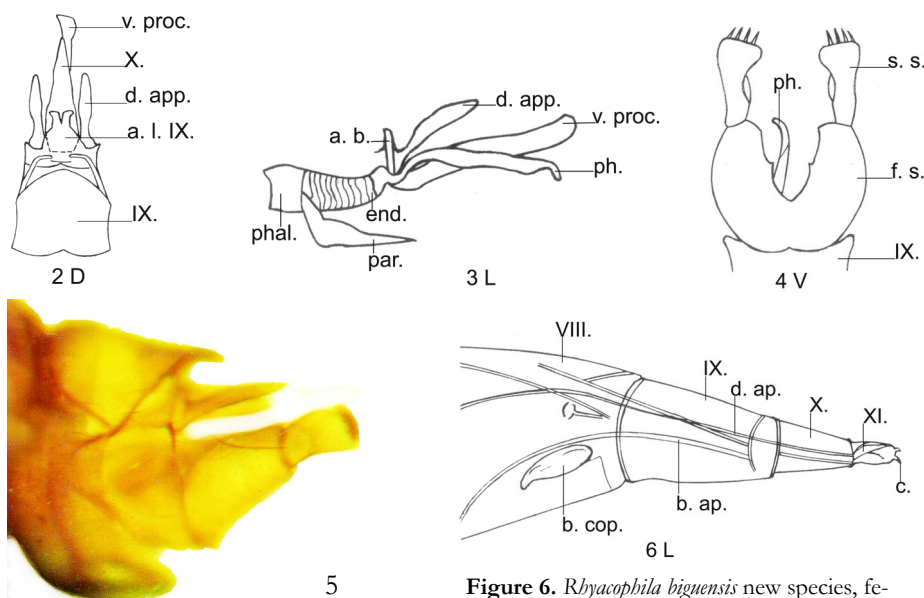
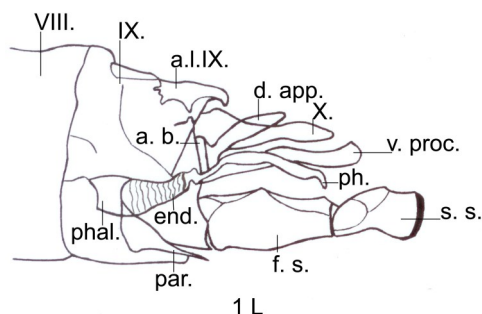


Figure 5. *Rhyacophila biguensis* new species, holotype male, habitus, lateral view.

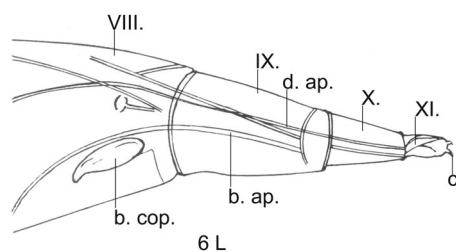


Figure 6. *Rhyacophila biguensis* new species, female genitalia, paratype („allotype”), left lateral view; b. ap. = basal apodemes; b. cop. = bursa copulatrix; c. = paired female cerci; d. ap. = dorsal apodemes; VIII, IX, X, XI = segment VIII; segment IX; segment X; segment XI.

is slightly convex, narrowing at the base (not, broadening as in *R. bicolor* and *R. kyimdongpa*)

6. First segment of each inferior appendages has a hollowed ventral edge, dorsal edge of the apical end has a small hollowed section, length is the same as the phallicata (not, hollowed and not the same length as the phallicata as in *R. bicolor* and *R. kyimdongpa*).

7. The second segment of each inferior appendages has ventral and dorsal edge-

es of nearly identical length, the ventral edge is hollowed in the mid-section, the dorsal edge in front of the apical end is hollowed, bearing 4 short spines (they are not, of equal length nor are they hollowed and the 4 short spines are absent in *R. bicolor* and *R. kyimdongpa*).

Female (in ethanol, n.=1). Body length 5.8 mm, forewing length 6.7 mm, width of each forewing 2.3 mm, length of each antennae 6.5–6.8 mm. Body, antennae, palpi, wings, abdomen and legs yellow in alcohol.

Female genitalia (Fig. 6). Simple, of medium length. Segments VIII and IX with setose tergum and sternum. Segment IX trapezoidal, proximal part is wider than the distal edge. In segment IX, X. the dorsal apodemes is elongated in the anterior direction in segment VIII. The basal apodemes commences in the middle of segment VIII and curves toward the base. The bursa copulatrix in the ventral part of segment VIII is thinner distally, broadening proximally both ends have a rounded form. Segment XI with pair of cerci in left lateral view.

Paratype “allotype”. ♀, Nepal, Mt. Kalinchok, 5 km W of Bigu, 2300 m elevation, by light trapping, 03 July 1997, leg. Márton Hreblay and Krisztina Csák (gen. prep. No 129, Ottó Kiss, coll. Ottó Kiss).

Etymology. Named for place where the new species was collected.

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