

A new species of *Macrostemum* from Taiwan (Trichoptera: Hydropsychidae)

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Abstract. A new species of the *Macrostemum fastosum* Group (Trichoptera, Hydropsychidae, Macronematinae G. Ulmer 1905, subfamily) is described *Macrostemum kissnandori* n. sp. from Taiwan of China. The imagines and their genitalia are illustrated.

Key words. Caddisflies, taxonomy, distribution, diagnosis, Taiwan.

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Introduction

The genus *Macronema* (type species *Macronema lineatum*, Pictet 1836), is diverse and widespread in the Neotropical region according to Flint & Bueno-Soria (1982), Burmaister (1989), Franca, Paprocki & Adolfo (2013), Ogbu & Adu (2006). *Macronema* was synonymized with *Macrostemum* Kolenati 1859 by Ulmer in 1907 Paprocki. Flint & Bueno-Soria (1979) divided the Neotropical representatives species of *Macronema* into the *M. hyalium* and *M. pervitans* Groups. All species from the *M. hyalium* Group are now placed in genus *Macrostemum* according to Paprocki (2008). The genus *Macronema* in the Australian region was reviewed by Nebois (1984a) resulting in description of the genus *Balimorpha*. The Australian species were transferred either to the genus *Macrostemum*, which has been recorded in low diversity in the Neotropical region as well.

Malicky (2007) from Bhutan mentioned the occurrence of *Macrostemum fastosum* Walker 1852, and *Macrostemum thomasi* Mey 1993. Later Malicky (2009, 2010) has published the genitalia diagrams of 25 *Macrostemum* species from Southeast Asia. Tian, Li & Sun (1991) reported on the taxonomy of 10 *Macrostemum* species amongst them the Taiwan species *Macrostemum fastosum* Walker, 1852 was also mentioned. Malicky (2014) reported Taiwanese Trichoptera, listing the species *Macrostemum formosicolum* Matsumura 1931. Morse (2016) listed 106 *Macrostemum* species among them there were *Macrostemum formosicolum* Matsumura 1931, and *Macrostemum quinquepunctatum* Matsumura 1931, as well as a further two subspecies namely *Macrostemum fastosum bifasciata* Martinov 1935 and *Macrostemum fastosum fasciatum* Martinov 1935. Based on the current literature the following list of Taiwan species can be mentioned yet: *Macrostemum fastosum* Walker, 1852, *Macrostemum formosicolum* Matsumura 1931, and *Macrostemum quinquepunctatum* Matsumura 1931. In 1982 Flint & Bueno-Soria reinstated the genus *Macrostemum* based on characters of wing coloration and male genitalia as well as on larval characters provided by Paprocki (2008).

Material and methods. The specimens in this study were captured in light trap and are stored in 75% ethanol. The posterior half of the abdomen of the holotype male was cleared in 20% KOH and the genitalia everted. Then the genitalia was placed in ethanol for examination under a stereomicroscope (Nikon, SMZ-10-2x) and sketched. For the identification of species the works by Malicky (2009, 2010), Tian, Li & Sun (1991), Oláh & Johanson (2008) and Oláh (2013). The holotype of the new species are deposited in the Mátra Museum of Hungarian Natural History Museum (Kossuth L. u. 40, Gyöngyös, Hungary. The terminology follows that of Oláh & Johanson (2008) and Tian, Li & Sun (1991). The abbreviations used in the text and for figures correspond with those of Oláh & Johanson (2008), Oláh (2013) and Tian, Li & Sun (1991).

***Macrostemum kissnandori* new species (Figs 1–7.)**

Holotype: male Taiwan, 2 km N of Tüpan, Prov. Taitung (Republic of China), 120°52'E, 22°29'N, 500 m elevation by light trapping, 24 October 1995, leg. Tibor Csővári & Pál Stéger (gen. prep. No 127. Ottó Kiss, coll. Mátra Museum of Hungarian Natural History Museum).

Paratypes: 2 male Taiwan, 2 km N of Tüpan, Prov. Taitung (Republic of China), 120°52'E, 22°29'N, 500 m elevation by light trapping, 24 October 1995, leg. Tibor Csővári & Pál Stéger (coll. Ottó Kiss).

Description — Male (in ethanol, n=3). Body length 9.8–10.2 mm, length of each forewing 13.0–13.2 mm is yellow with light pattern composed of 4 patches which yellowish brown, circle-shaped patches in subcostal area, nearly circle-shaped thyridium cell patch, similar the cubital area patch and subradial area patch. Hind wings 8.6–9.0 mm long and width 4.1–4.5 mm, colour pale yellow. Dorsum of head and totally prothorax, mesothorax and metathorax as well as coxa and the first tibiae are yellow; head of ventrum setae, warts and inferior appendages yellow. Compound eyes characterized by black patches on yellow base.

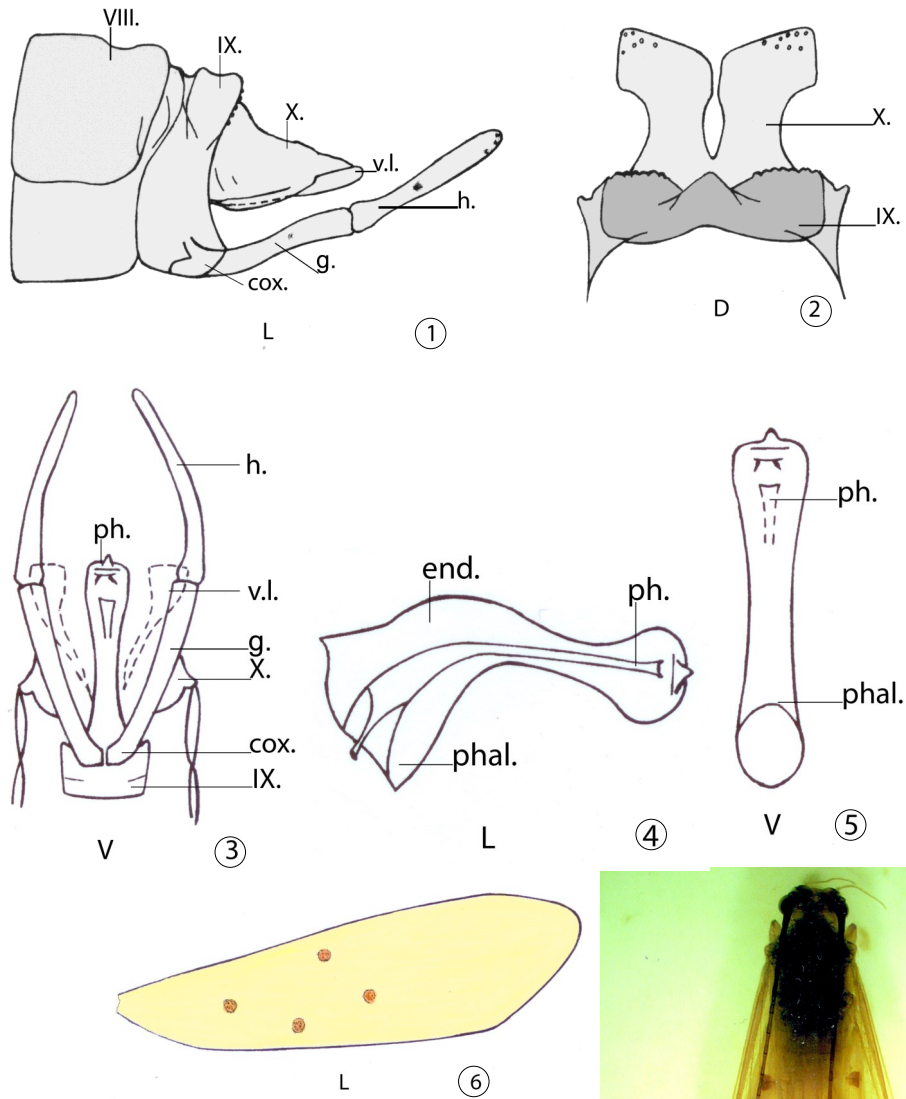
Male genitalia (Figs 1–5). Segment IX (IX. Figs 1, 2) short, dorsal edge sunken centrally, ventrally widening quadrangle ventrally in lateral view; the central part of segment IX dorsally projecting conical rise; the anterior end of the profile has a visible, short, wavy, thickening row of dots and a minor lateral ear, the posterior end is arched. Segment X (X., Figs 1, 2) dorsal edge uneven triangular in lateral view; V-shaped opening dorsally with a formation resembling a right-handed and left-handed hockey stick. Segment X (Fig. 1) attached to ventral peak with short, lobular shaft. The coxopodit and harpago (cox., harp., Figs 1, 3) with equal length but of different diameters, coxopodit thicker than harpago. The phallic organ (ph., Figs 3, 4, 5) cupped at the caudal end, the central portion of the peak bulges, below are two minor spikes. The phallobase broadening and bending downwards, in angle 120°. Endophallus narrowing (centrally) in caudal direction, the phallicata is a long thin tube. The paraproct is vestigial.

Female. Unknown.

Differential diagnosis. This new species belongs to the *Macrostemum paradiatum* Tian, Li & Sun 1991, which they described from China (Anji, Zhejiang Prov., pp. 366 and 368, fig. 2), but they differ in details of markings in the forewings as well as in colour and the structure of the genitalia.

1. Segment IX of the dorsal edge is sunken centrally (it does not, become rounded, central conical protrusion is absent as in *M. paradiatum*).

2. Segment X is triangular, dorsal edge is uneven (not, straight and arched in *M. paradiatum*); viewed from above the V-shaped opening has the two hockey stick



Figs 1–6. *Macrostemum kissnandori* new species male holotype genitalia. 1L, left lateral view; 2D, IX., X. segments, dorsal view; 3D, gonopod and phallic organ, ventral view; 4L, phallic organ, lateral view; 5V, phallic organ, ventral view; 6L, forewing patches, right lateral view; Abbreviations: cox. = coxopodit; end = endophallus; g. = gonopod; h. = harpago; ph. = phallicata (aed.= aedéage of Schmid, 1970); phal. = phallicata; ph.o. = phallic organ; IX. = segment IX; X. = segment X.

Fig. 7. *Macrostemum kissnandori* new species male, holotype, habitus

formations drawing away (the ends do not become thinning wing forms, on the ventral edge the short lobe on a staff is absent in *M. paradiatum*).

3. The coxopodit and the harpago are of uniform length (not, having the harpago significantly shorter as *M. paradiatum*).

4. The angle of the phallobase is 120° (not, 90° as in *M. paradiatum*).

5. The peak of the phallic organ bulges centrally, below are two minor slanted spikes (there is no protrusion and two spikes are absent).

Etymology. This fine species is cordially dedicated to my son Dr Nándor Kiss.

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