

FIRST RECORD OF THE DAGGERFLY *TACHYPEZA YINYANG* PAPP & FÖLDVÁRI IN CROATIA (INSECTA: DIPTERA, HYBOTIDAE)

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The daggerfly, *Tachypeza yinyang* Papp & Földváry, 2002, originally described from Hungary is recorded for the first time in Croatia. Additional notes on its description and illustrations of habitus and male terminalia are provided.

Key words: Hybotidae, *Tachypeza*, new record, Croatia

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Vrsta *Tachypeza yinyang* Papp & Földváry, 2002 koja je opisana iz Mađarske po prvi put je zabilježena u Hrvatskoj. Dodatni podaci o njenom opisu te crteži habitusa i genitalija mužjaka su također priloženi.

Ključne riječi: Hybotidae, *Tachypeza*, novi podatak, Hrvatska

INTRODUCTION

Tachypeza yinyang Papp & Földváry, 2002 was the last valid *Tachypeza* species described from Europe. The description was based on three males from Hungary, each however from a different locality. SHAMSHEV & GROOTAERT (2018) report the species also from Republic of Adygea in the Russian Caucasus. In the present paper, it is recorded from Croatia for the first time and some detailed remarks on its identification as well as illustrations of the male terminalia are given.

MATERIAL AND METHODS

The species was collected in Plitvice Lakes National Park, located in the karst region of the west Dinaric Mountains in Croatia. The Plitvice Lakes system consists of 16 oligotrophic, dimictic and fluvial lakes divided by tufa barriers, which are natural barrage lake outlets. The system is supplied with water from the Matica Stream, which is formed by the merging of two small rivers (Crna rijeka and Bijela rijeka) and ends with the formation of the Korana River after the last lake, Novakovića Brod (Fig. 1).

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Fig. 1. Map of the study site: Korana River in Korana village (KV).

The single male was collected in an emergence trap set-up at Korana River in the village of Korana (Fig. 2). Six pyramid-type emergence traps were operated from February 2007 to February 2009. Traps were sited in such a way as to ensure representative sampling of emergence from all microhabitats present at each site. Each trap was a 50 cm tall, four sided pyramid with a base of 45×45 cm, fastened to the streambed to allow the free movement of larvae in and out of the sampling area. The side frames of the traps were covered with 1-mm mesh netting (Ivković *et al.*, 2013). The site completely dried out in the summer months of 2007 (July – mid September), but not in 2008.

RESULTS

Systematics

Class: Insecta Linnaeus, 1758

Order: Diptera Linnaeus, 1758

Suborder: Brachycera Macquart, 1834

Superfamily: Empidoidea Latreille, 1804

Family: Hybotidae Meigen, 1820
Subfamily: Tachydromiinae Meigen, 1822
Tachypeza yinyang Papp & Földvári, 2002
Figs 3 – 4.



Fig. 2. Emergence traps at the Korana River site in Korana village.

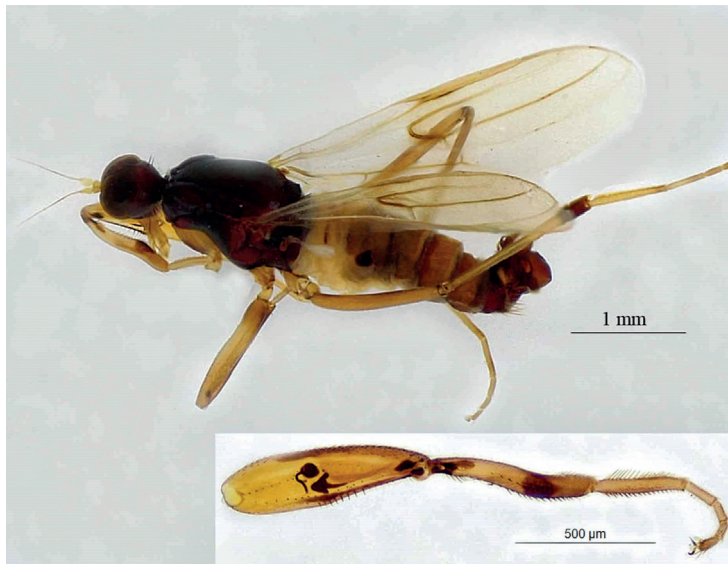


Fig. 3. *Tachypeza yinyang* Papp & Földvári Male A. Habitus; B. Right fore leg, anteriorly. (Photo credit Isabella Van de Velde).

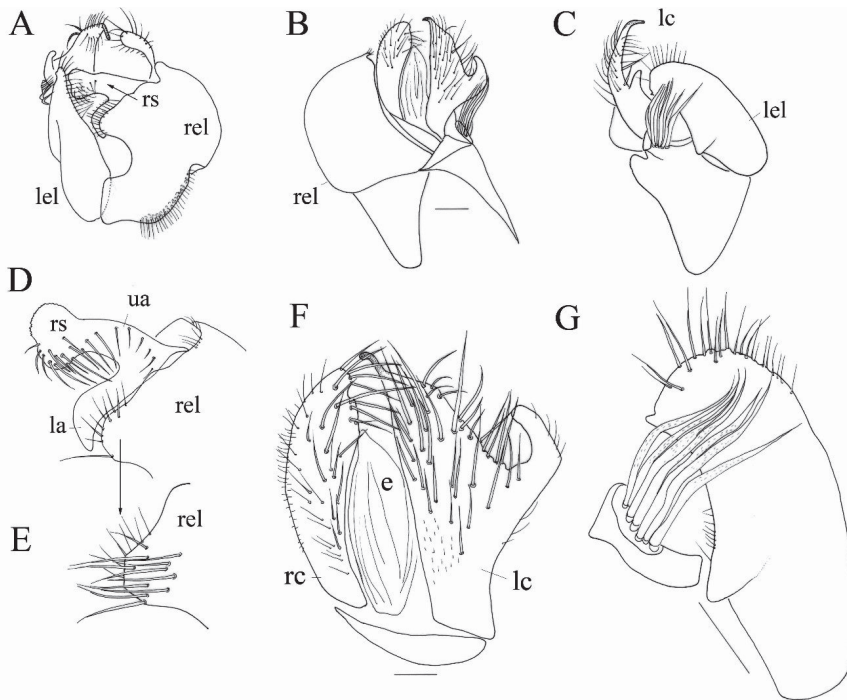


Fig. 4. *Tachypeza yinyang* Papp & Földvári. Male terminalia. A. Epandrium lateral, showing apices of right and left epandrial lamellae and inside apices of right and left cerci; B. Epandrium dorsal; C. Epandrium left side; D. Border of right epandrium lamella and right surstylus; E. Detail of inside of border of right epandrial lamella; F. Right and left cercus; G. Left epandrial lamella. Abbreviations: lel: left epandrial lamella; e: epiproct; rc: right cercus; rel: right epandrial lamella. Scale 0.1mm (Illustration credit Patrick Grootaert).

Material examined: 1 male, Početak Korane (Korana River in Village Korana), NP Plitvice Lakes, Croatia, 29.09.2008, P4 (emergence trap 4), coll. M. Ivković, Altitude 390 m, E 15° 37' 09" N 44° 55' 33"

Extended Diagnosis

A medium-sized species (2.5–3 mm) with mesonotum and thoracic pleura densely covered with microtrichia. Pleura at most subshining. Palpus yellow with white bristling; subapical bristle pale brownish. Antenna with whitish postpedicel; arista dark. Proboscis dirty yellowish. Acrostichals and dorsocentrals minute, no strong prescutellar dorsocentral present. Scutellars strong and widely separated. Fore coxa lacking a strong anteroventral subapical spine, instead a less strong brown posterior apical bristle present. Legs yellow with a coloured pattern. Fore femur much swollen, anteriorly flattened with a black pattern near middle, no clusters of black bristles or hairs present. Fore tibia swollen and twisted, ventrally with a black spot just beyond middle. Mid femur with a black conical projection at base bearing about 6 strong spine-like bristles. This projection fits into a shallow ventral preapical excavation of the mid tibia. Apex of hind tibia annulated black. Wing pale greyish but somewhat yellowish near middle at the level of the darkened fork of R_{2+3} and R_{4+5} . Costa yellowish, swollen from

tip R_1 attenuating towards tip of wing. Veins R_{4+5} and M_1 running parallel and both turning up toward tip of wing.

Male terminalia (Fig. 3) large black. Right cercus simple, digitiform with long bristles mainly in apical half (Fig. 4 F). Left cercus forked; right arm of the fork large with a pointed darkened apex directed inward (Fig. 4 B, C, F). Left arm much shorter than left fork with a rounded apex. A sclerite at the base of the left epandrial lamella bears 7 long flattened bristles reaching halfway to the left cercus (Fig. 4 C) and half as long as the left epandrial lamella (Fig. 4 G). The bristles bear minute dots. Left epandrial lamella apically rounded with a small pointed subapical projection. Apex with a row of short bristles (Fig. 4 G). Right epandrial lamella large with an emarginated apical border (Fig. 4 A) as can be seen in more detail in Fig. 4 D. The median projection of the border bears a row of small bristles but the bristles at the inside of the projection are much longer (Fig. 4 E). Right surstylus forked (Fig. 4 D). The arm of the fork bears long bristles but the lower arm, partly hidden below a projection of the border of the right epandrial lamella, lacks bristles (Fig. 4 D).

DISCUSSION

The present observation of *Tachypeza yinyang* is the first record for Croatia and the second observation of this species in Europe. This seems to confirm that it is a very rare European species. However recently, it has also been observed in the Russian Caucasus (Adygea) (SHAMSHEV & GROOTAERT, 2018).

Three *Tachypeza* species are now known in Croatia. Previously known were only *Tachypeza nubila* (Meigen, 1804), the most common European species of *Tachypeza*, which in lowland Europe can be seen almost everywhere running on tree trunks, logs or walls, and *T. fuscipennis* (Fallén, 1815), a less common species in Europe.

When this situation is compared to that in the Czech Republic and in Slovakia where CHVÁLA (1975a) observed six species of *Tachypeza* as well as in Hungary where four species are known (PAPP & FÖLDVÁRI, 2002; SHAMSHEV & GROOTAERT, 2018), it is clear that several more species can be expected to occur in Croatia especially in mountainous areas.

The northern European species of *Tachypeza* can be identified with the monograph of CHVÁLA (1975b) on the Scandinavian fauna and the Central European species with the key in CHVÁLA (1975a). *Tachypeza yinyang*, which was published later, should be compared mainly with *T. truncorum* (Fallén, 1815) with which it shares following characters: entirely grey dusted thoracic pleura, lacking a subapical spine on the fore coxa and widely separated strong scutellar bristles. In *T. yinyang* there is no cluster of dark hairs anteriorly on the fore femur and the fore tibia is twisted and yellow except for a black ventral spot beyond the middle. In *T. truncorum* there is a cluster of dark bristly hairs anteroventrally in the apical third of the fore femur and the fore tibia is straight with the apical half partly black. Further, it does not have the typical black maculation anteriorly on the fore femur like in *T. yinyang*.

Although the specimen was collected here in Croatia in an emergence trap placed in a riverbed, this does not mean that *T. yinyang* larvae live in humid soils, since flies preferring true terrestrial habitats are exceptionally also found in these kinds of traps. The traps are sometimes placed over a very low water level and then terrestrial flies can enter into the trap and are caught unintentionally.

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