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## Thaumaleidae (Diptera) collected by the late Dr. W. Joost in the Caucasus Mountains

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**Abstract.** The aquatic insect collection of the late Dr. W. Joost contained two new species of Thaumaleidae (Diptera) from the Caucasus Mountains: *Thaumalea monikae* sp. n. and *Thaumalea biacuminata* sp. n. These two new species are herein described, and the most abundant species in Dr. Joost's collection, *Thaumalea martinovskyi* Joost, 1979, is redescribed based on the type material. Figures of male and female genitalia for all species are provided. All three species show morphological similarities to taxa from the Eastern Mediterranean area. *Thaumalea monikae* is related to the European *T. bezzii*-species group, *T. biacuminata* to the *T. serrata*-group, and *T. martinovskyi* to *T. kyladica* Wagner, 1981 and *T. malickyi* Theischinger, 1979 from the Eastern Mediterranean area.

**Key words:** *Thaumalea monikae* sp. n., *T. biacuminata* sp. n., *T. martinovskyi* Joost, 1979 redescription

### Introduction

The family Thaumaleidae (Diptera) contains some 180 species in 8 genera, with the large majority occurring in the Northern Hemisphere. About 80 species are known from the Palaearctic Region, with 77 recorded from Europe (Wagner 2002, 2003; Wagner *et al.* 2008). Adults are small but robust nematoceros flies resembling Simuliidae in their habitus. However, they are easily distinguished by their characteristic wing venation:  $R_{4+5}$  runs convergent towards  $M_1$  distally, media is unbranched, and cross-veins or vein forks are lacking in the distal half of the wing. Furthermore, the antennae appear somewhat arista-like, with flagellomeres decreasing in size apically. Specimens are about 3.0–5.0 mm in size, yellowish to dark brown; eyes are holoptic in both sexes and ocelli are absent. The thorax and legs lack specific characters, the abdomen is cylindrical, and species of Thaumaleidae are usually distinguished by the characters of the male and female genitalia.

Larvae are hypognathous and are restricted to hygropetric, or madicolous, habitats (Vaillant 1956). There they feed on detritus and submersed biofilms. Pupation takes place in moist detritus or wet mosses near the larval habitats. The majority of Thaumaleidae appear rare, stenotopic and often with restricted distributions in mountain chains or massifs. In Europe only a few species like *Thaumalea testacea* Ruthe, 1831, are more widely distributed. A comprehensive identification key to the European species was provided by Wagner (2002), lacking only *Androprosopa rangifer* Martinovský, 1999. In southeastern Europe the Thaumaleidae are superficially known from Bulgaria (Joost 1978) and Greece, principally from the Aegean region (Wagner 1981). The fauna of the Anatolian Mountains remains completely unknown.

In the 1970s the late Dr. W. Joost repeatedly collected aquatic insects in the Caucasus Mountains. Amongst these collections were Thaumaleidae. He described *T. martinovskyi* from a tributary stream of the Dongusorun-Baskan near Terskol, Central Caucasus Mountains (Joost 1979). In the 1980s, he returned for further collection in these mountains that extend from about the shore of the Black Sea nearly to the Caspian Sea, generally trending east-southeast. The published results of his tours are only fragmentary and many specimens were left unidentified in his collection. Further examination of these Thaumaleidae revealed the presence of undescribed species. Due to the poor figures and original description of *T. martinovskyi*, a re-description and new figures of the male genitalia are provided, together with the description of two species new to science.