Interesting record of eupelmid wasps of the rare genus *Calymmochilus* Masi, 1919 (Hymenoptera: Chalcidoidea: Eupelmidae) from Dagestan, Russia

© O.V. Kosheleva

All-Russian Institute of Plant Protection, Podbelskiy Roadway, 3, St Petersburg, Pushkin 196608 Russia. E-mail: koscheleva_o@mail.ru

Abstract. The genus *Calymmochilus* Masi, 1919 and the species *C. dispar* Bouček et Andriescu, 1967 are recorded for the fauna of Russia (the south-eastern regions of Dagestan, the North-Eastern Caucasus) for the first time. Species of this genus are not difficult to distinguish from other Eupelmidae. The best character for recognizing almost all European species is the unusually strongly protruding clypeus which is mostly denticulate on the anterior margin. Besides, the newly collected *C. dispar* is the only European species with brachypterous females. Data on the morphology, distribution and host-parasitoid interactions of the collected species are given.

Key words: Eupelmidae, *Calymmochilus*, parasitoids, Dagestan, Russia, fauna, new data.

Интересная находка наездников-эвпельмид редкого рода *Calymmochilus* Masi, 1919 (Hymenoptera: Chalcidoidea: Eupelmidae) из Дагестана, Россия

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Всероссийский институт защиты растений, шоссе Подбельского, 3, Санкт-Петербург, Пушкин 196608 Россия. E-mail: koscheleva_o@mail.ru

Резюме. Род *Calymmochilus* Masi, 1919 и вид *C. dispar* Bouček et Andriescu, 1967 впервые обнаружены в фауне России (Северо-Восточный Кавказ, юго-восточные районы Дагестана). Виды этого рода легко отличаются от других Eupelmidae. Наиболее характерным признаком почти всех европейских видов является необычайно сильно выдающийся вперед клипеус, чаще зубчатый на переднем его крае. Кроме того, обнаруженный *C. dispar* – это единственный европейский вид, самки которого короткокрылые. Приведены данные по морфологии, распространению и хозяино-паразитным отношениям обнаруженного вида.

Ключевые слова: Eupelmidae, *Calymmochilus*, паразитоиды, Дагестан, Россия, фауна, новые данные.

Introduction

The Eupelmidae is a small worldwide family of parasitoid wasps known mainly in tropical and subtropical regions. The world fauna of the eupelmid wasps currently includes more than 1000 species from 43 genera, and only 245 species from 14 genera are known in the Palaearctic region [Noyes, 2019]. In Russia, Eupelmidae is a poorly studied group with extremely fragmentary data, at present comprising 9 genera and 38 species placed in three subfamilies [Kosheleva, Trjapitzin, 2019].

The genus *Calymmochilus* was erected by Masi [1919] for three females of *C. atratus* Masi, 1919 from Italy (Tuscany and Liguria). Since then only five species were described from Europe [Bouček, Andriescu, 1967; Trjapitzin, 1978; Askew, Nieves-Aldrey, 2004; Korenko et al., 2013; Fusu et al., 2018], including *C. subnubilus* (Walker, 1872), which was transferred by Bouček [1970] from the genus *Eupelmus* Dalman, 1820. Five species are known from the Australasian region, and one species from India [Bouček, 1988; Austin et al., 1998; Noyes, 2019]. Many species of eupelmid wasps are rare in collections, because most Eupelmidae are infrequently occur when using the traditional method for collecting chalcid wasps with sweep nets.

In this note, the genus *Calymmochilus* Masi, 1919, as well as species *C. dispar* Bouček et Andriescu, 1967 is newly recorded for the Russian fauna (North-Eastern Caucasus, Dagestan), representing a north-easternmost record of this genus.

Material and methods

The paper is based on the material from the collection of the Zoological Institute of the Russian Academy of Sciences (ZISP, St Petersburg, Russia).

Morphological terminology follows Gibson [1989, 1995], Korenko et al. [2013], Gibson and Fusu [2016], and Fusu et al. [2018].

The photographs of specimens were taken using a Canon EOS 70D digital camera mounted on an Olympus SZX10 microscope.

Genus *Calymmochilus* Masi, 1919

Calymmochilus Masi, 1919: 326–328. Type species: *Calymmochilus atratus* Masi, 1919 by monotypy.

Tasmanastatus Bouček, 1988: 554–555. Type species: *Tasmanastatus planus* Bouček, 1988 by original designation. Synonymy by Gibson [1995: 176, 178].

Notes. Before the revision of the world genera of the subfamily Eupelminae (Chalcidoidea: Eupelmidae) by Gibson [1995], the genus *Calymmochilus* were primarily distinguished by the strongly protruding clypeus, which

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Figs 1–4. *Calymmochilus dispar* Bouček et Andriescu, 1967, females.
1–2 – habitus, lateral view (1 – body length 4.3 mm, 2 – body length 2.8 mm); 3–4 – head, frontal view. Abbreviations: ac – acropleuron; cl – clypeus; cr – crest; pre – prepectus; scd – scrobal depression.
Рис. 1–4. *Calymmochilus dispar* Bouček et Andriescu, 1967, самки.
1–2 – габитус, вид сбоку (1 – длина тела 4.3 мм, 2 – длина тела 2.8 мм); 3–4 – голова, вид спереди. Обозначения: ac – акроплеврон; cl – клипеус; cr – гребень; pre – препектус; scd – усиковые впадины.

is denticulate along the anterior margin [Bouček, 1988], and this character was used in keys of Peck et al. [1964], Trjapitzin [1978] and Bouček [1988].

Gibson [1995] redefined the genus *Calymmochilus* and synonymized Australian genus *Tasmanastatus* with *Calymmochilus* on the basis of apomorphic characters of mandibular structures, of the structure of middle legs and last tergite. He recognized two species groups, the *planus* group (former genus *Tasmanastatus*) with one European species *C. russoi* Gibson, 1995, and the *subnubilus* group, which includes all other European species.

According to data on host relationship for two species belonging to the *subnubilus* species-group, they are parasitoids of arachnids, and one species of the *planus* species-group is associated with the scolytid beetle *Phloeotribus scarabaeoides* (Bernard, 1788) (Coleoptera: Curculionidae: Scolytinae), as a primary or secondary parasitoid [Austin et al., 1998; Korenko et al., 2013; Fusu et al., 2018].

Calymmochilus dispar Bouček et Andriescu, 1967 (Figs 1–4)

Type material. 1♀, paratype (ZISP), Armenia, Dzhrvezh, near Yerevan, under stone, 1.10.1956 (V.A. Trjapitzin); 1♂, paratype (ZISP), "Jugoslavia [Croatia] Dalm. Sept. Environ de ZADAR 30.VII.[19]66. Hffr-Šťast".

Material. 1♀ (ZISP), Russia, Dagestan Republic, 6 km SE Novokayakent, 42.354618°N / 48.050424°E, 7.08.2018 (M.V. Mokrousov); 2♀ (ZISP), Russia, Dagestan Republic, 4 km SW Korkmaskala, Barkhan Sarykum, at light, 43.002293°N / 47.237432°E, 28–31.05.2019 (K.I. Fadeev).

Diagnosis. Female (Figs 1–4). Body length 2.8–4.3 mm. Body dark brown to black with reduced green-purple metallic lustre, barely visible on the head and mesoscutum. Legs brown with metafemora dark brown; scape, ovipositor sheaths and tarsi except last tarsomere dark yellow. Head flattened, slightly higher than wide, with lower parascrobal region abruptly angled to gena, a ridge or crest between torulus and lower orbit (Fig. 3). Clypeus roundly produced, serrate at margin (Figs 3, 4). Scrobal depression deep, reticulate to strigose (Fig. 3). Mandibule very narrow, hidden behind the clypeus. Torulus separated from mouth margin by distance of about torulus height. Antenna long, all segments distinctly longer than broad (Fig. 4). Mesoscutum and axillae fused into one contiguous flat structure with imbricate-coriaceous to alutaceous surface sculpture. Scutellum smooth and polished (Fig. 1). Prepectus slightly larger than tegula (Fig. 1). Acropleuron imbricate-coriaceus to coriaceous-reticulate, mesally smooth and polished (Figs 1, 2). Wings reduced, fore wing rudiment emarginated apically, infuscate and extending to base of gaster (Fig. 1). Gaster laterally flattened with rounded apex; the ovipositor sheaths not (Fig. 1) or barely exserted (Fig. 2).

Notes. A detailed description of both sexes of *Calymmochilus dispar* was provided by Bouček and Andriescu [1967] based on materials from Romania, France, Italy, Croatia, Bulgaria and Armenia. *Calymmochilus dispar* can be distinguished from other

species of *Calymmochilus* using a key of Fusu et al. [2018], who revised the European species of *Calymmochilus* including *C. dispar* with redescriptions, illustrations, biological and distributional data. Korenko et al. [2013] described the last instar larva and pupa of *C. dispar* with data on host associations of this parasitoid.

Distribution. Morocco, Portugal, Spain, France, Germany, Italy, Croatia, Serbia, Romania, Bulgaria, Greece, Turkey, Armenia [Bouček, Andriescu, 1967; Bouček, 1977; Trjapitzin, 1978; Askew, Nieves-Aldrey, 2004; Korenko et al., 2013; Fusu et al., 2018; Noyes, 2019] and Russia (Dagestan Republic) (new record).

Host. In Portugal, *C. dispar* is known as a parasite of the ant-eating spider *Zodarion styliferum* (Simon, 1870) (Aranea: Zodariidae) [Korenko et al., 2013].

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