

## Two new species of the genus *Ecclisopteryx* Kolenati from Turkey (Trichoptera, Limnephilidae, Drusinae)

### Dos nuevas especies del género *Ecclisopteryx* Kolenati de Turquía (Trichoptera, Limnephilidae, Drusinae)

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(Recibido: 30/03/2015; Aceptado 09/04/2015; Publicado on-line: 21/05/2015)

urn:lsid:zoobank.org:pub:56996424-BBBC-4B9B-B39D-0A32A87AAA6C

#### Abstract

Two new species of the genus *Ecclisopteryx* Kolenati, 1848 are described and figured: *Ecclisopteryx oylat* sp. n. from Bursa Province in the Marmara Region and *Ecclisopteryx aksu* sp. n. from southern Turkey in Isparta Province. Both new species are closely related to *Ecclisopteryx dalecarlica* Kolenati, 1848.

**Keywords:** Trichoptera, new species, *Ecclisopteryx*, Drusinae, Turkey.

#### Resumen

Se describen y figuran dos nuevas especies del género *Ecclisopteryx* Kolenati, 1848: *Ecclisopteryx oylat* sp. n., de la provincia de Bursa, en la región de Marmara y *Ecclisopteryx aksu* sp. n., de la provincia de Isparta, en el sudeste de Turquía. Ambas especies están estrechamente relacionadas con *Ecclisopteryx dalecarlica* Kolenati, 1848.

**Palabras clave:** Trichoptera, nuevas especies, *Ecclisopteryx*, Drusinae, Turquía.

#### INTRODUCTION

The European genus *Ecclisopteryx* Kolenati, 1848 is currently represented by nine species including two new species described in the present study. *Ecclisopteryx guttulata* (Pictet, 1834) and *E. dalecarlica* Kolenati, 1848 are largely distributed species of the genus, and are closely related to each other. Both species are originally described as independent taxa of species status, but Schmid (1956) considered in his revision of the subfamily Drusinae that the differences between them based on features that are quite similar and the main

difference is seen in the position of the inferior appendages, which is not enough to make them species, deciding that both of them are subspecies of *E. guttulata*. The third species, which is also widespread in Europe, is *E. medida* (McLachlan, 1867). *Ecclisopteryx asterix* Malicky, 1979 and *E. malickyi*, 1991 (Malicky, 2004) are endemic species having limited distribution in the Alps. The last three species are morphologically well separated, while *E. dalecarlica* and *E. guttulata* are accepted as cryptic species, namely morphologically unrecognized species (Previšić *et al.*, 2014) or similar species that could be identified

as a single species. The recognition of other recently described two new species, *E. keroveci* Previšić, Graf & Vitecek, 2014 and *E. ivkae* Previšić, Graf & Vitecek, 2014 from the west Balkans were based on the results of DNA sequence analysis and morphological features (PREVIŠIĆ *et al.*, 2014). These both new species are closely related to *E. dalecarlica*.

Previously, *E. dalecarlica* was recorded in Turkey (SIPAHILER, 2003, 2005) based on material collected from the Marmara Region and southern Turkey, and described below two new species, namely *E. oylat* sp. n. was collected in the Marmara Region also, and *E. aksu* sp. n. found in southern Turkey, Isparta Province, which is located at the southern border of the distribution area of the genus *Ecclisopteryx*. Both new species are also closely related to *E. dalecarlica* but clearly identified according to their morphological features.

## MATERIALS AND METHODS

Specimens were collected during the day time using a hand entomological net. The material was preserved in 75% ethyl alcohol and deposited in the author collection in Hacettepe University Department of Biology Education (Beytepe, Ankara, Turkey). The figures were drawn using a Zeiss Stemi SV 6 microscope.

## DESCRIPTIONS

*Ecclisopteryx oylat* sp. n. (Figs. 1-8)

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**Material.** Holotype male and paratype female: Turkey, Bursa, Oylat, Kozluca direction, 10 km east of Saadet Village, 630 m a.s.l., 40° 05' N, 29° 03' E, 19.5.1994, leg. and coll. Sipahiler.

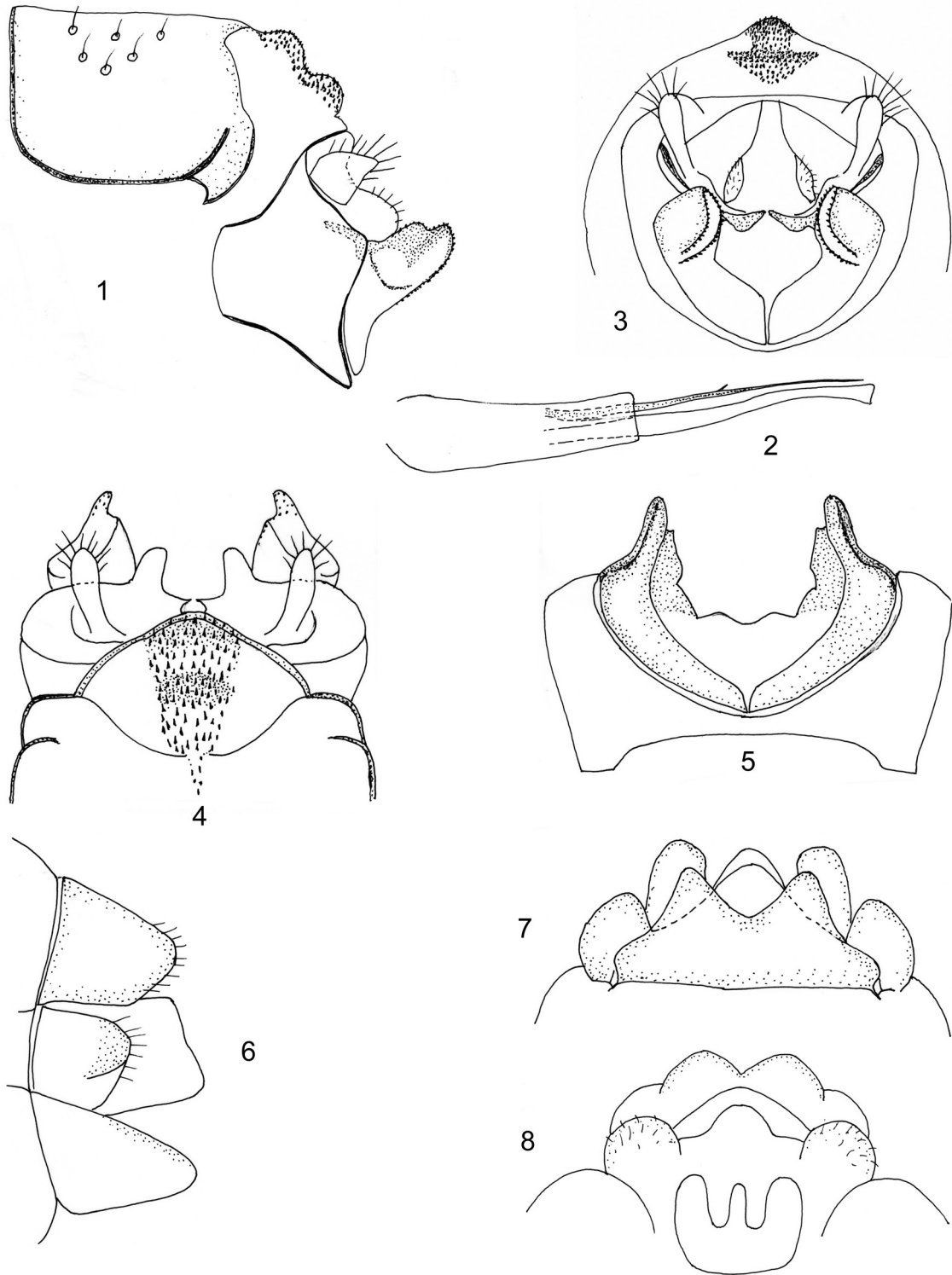
Antennae, maxillary palps and wings pale brown; spur formula both males and females is 1.2.3; the length of the anterior wing of male 10 mm, female 11 mm.

**Male genitalia** (Figs. 1-5). The spinulose zone of tergite VIII scarcely covered with spines, in lateral view the median part is deeply excised forming two rounded lobes. Segment IX in

lateral view expands on the anterior margin and forms an almost quadrangular lobe in the middle, narrowed on the ventral portion. The preanal appendages laterally are broad at the base; the sides are parallel, narrowed towards the pointed apex. The intermediate appendages are reduced. The inferior appendages laterally are directed somewhat towards dorsal, the posterior edge is rounded on the dorsal portion becoming narrower towards ventral; the dorsal edge excised medially and forms two lobes on the sides; the inner surface, the dorsal edge, and the dorsal part of the posterior edge possess short, black spines. The parameres are shorter than the phallus and each possesses only one spine nearly in the middle.

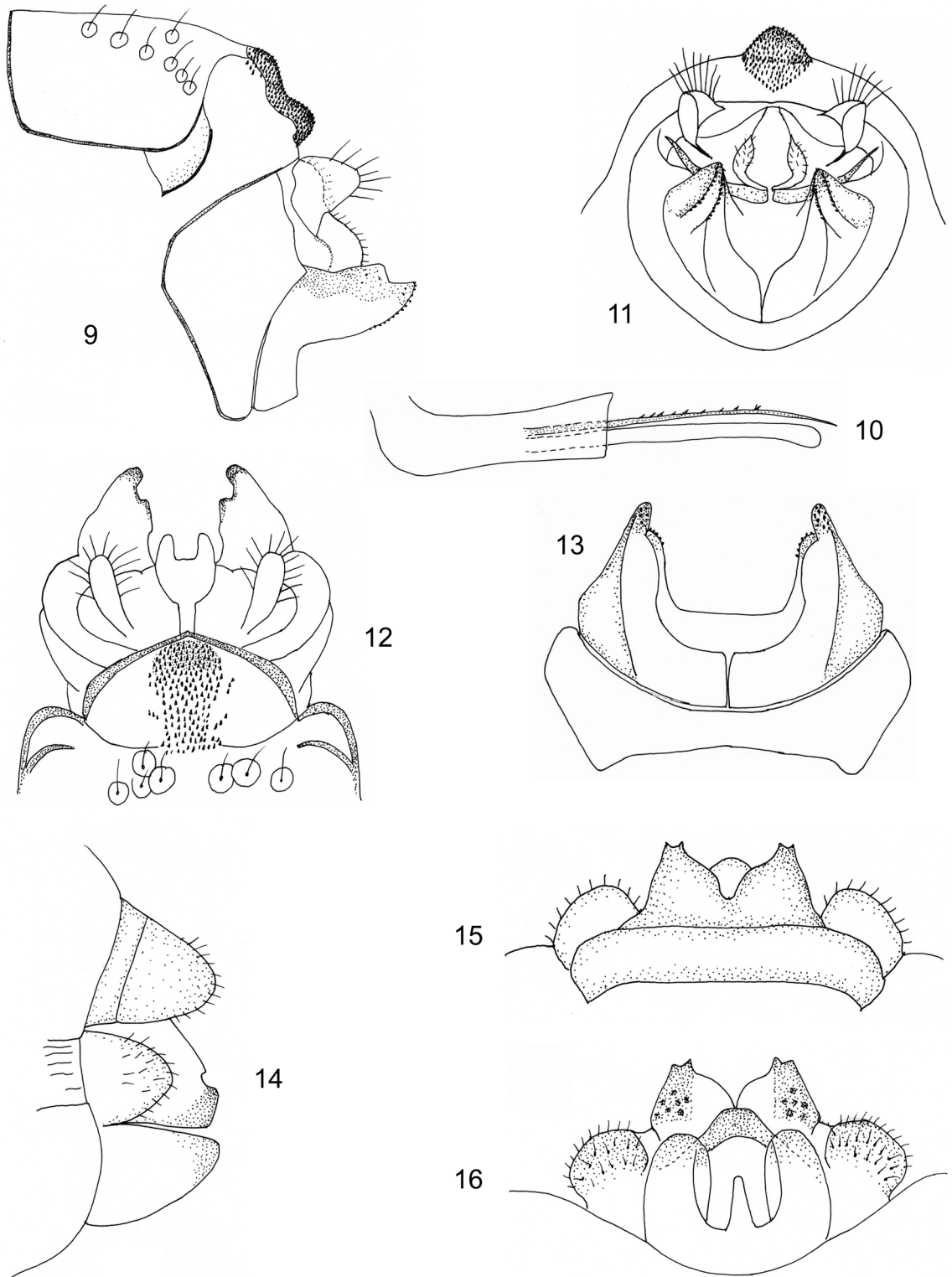
**Female genitalia** (Figs. 6-8). In dorsal view, the posterior edge of segment IX fuse to segment X, the sides protrude as broad and short lobes; the tubular piece of segment X triangular, the apex is rounded. The supragenital plate laterally almost quadrangular, the ventral edge is longer than the dorsal edge; the posterior edge is slightly and roundly excised in the middle rounded on the ventral corner. The median lobe of the vulvar scale is shorter than the lateral lobes; both are rounded at the tips.

**Remarks.** *Ecclisopteryx oylat* sp. n. is closely related to *Ecclisopteryx dalecarlica* Kolenati, 1848 (SCHMID, 1956), but differs from this species by the following features: in *E. dalecarlica* the spinulose zone of tergite VIII is covered with dense spines, in lateral view only slightly excised medially; the anterior margin of segment IX expands broadly triangularly; the preanal appendages are rounded in lateral view, while in *E. oylat* sp. n. the spinulose zone of tergite VIII is sparsely covered with spines and in lateral view the median excision is deep; anterior edge of segment IX laterally expands forming almost a quadrangle in the middle. The preanal appendages in *E. dalecarlica* are roundly oval, while in *E. oylat* sp. n. they are pointed at the tips. In *E. dalecarlica* the inferior appendages are concave on the outer surface and the ventral part is broad, with a rather large lobe protruding laterally, whereas they are a little depressed in the new species and the ventral part is narrow. In addition *E. dalecarlica* has numerous small spines on the parameres, but the new species



**Figures 1-8:** *Ecclisopteryx oylat* sp. n.: 1-5: male genitalia. 1, lateral view; 2, phallic apparatus, lateral view; 3, caudal view; 4, dorsal view; 5, ventral view. 6-8: female genitalia. 6, lateral view; 7, dorsal view; 8, ventral view.

**Figuras 1-8:** *Ecclisopteryx oylat* sp. n.: 1-5: genitalia masculina. 1, vista lateral; 2, aparato fállico, vista lateral; 3, vista caudal; 4, vista dorsal; 5, vista ventral. 6-8: genitalia femenina. 6, vista lateral; 7, vista dorsal; 8, vista ventral.



**Figures 9-16:** *Ecclisopteryx aksu* sp. n.: 9-13: male genitalia. 9; lateral view; 10, phallic apparatus, lateral view; 11, caudal view; 12, dorsal view; 13, ventral view. 14-16: female genitalia. 14, lateral view; 15, dorsal view; 16, ventral view.

**Figuras 9-16:** *Ecclisopteryx aksu* sp. n.: 9-13: genitalia masculina. 9, vista lateral; 10, aparato fálico, vista lateral; 11, vista caudal; 12, vista dorsal; 13, vista ventral. 14-16: genitalia femenina. 14, vista lateral; 15, vista dorsal; 16, vista ventral.

possesses only one spine on each paramere. The differences in the female genitalia are as follows: in *E. dalecarlica* segment X in dorsal view is broad, with small tubular pieces protruding on the sides, the posterior margin with a small excision in the middle and small rounded lobes on each side, but in *E. oylat* sp. n. the excision between the tubular pieces is deep, forming broadly triangular lobes on the sides.

***Ecclisopteryx aksu* sp. n.** (Figs. 9-16)

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**Material.** Holotype male and paratypes (4 males, 3 females): Turkey, Isparta, Eğirdir, Aksu, Aksu River, 1350 m a.s.l., 37° 49' N, 31° 06' E, 17.6.2002; leg. and coll. Sipahiler.

Antennae, maxillary palps brown; head dorsally blackish, thorax dark brown; femur of the legs pale brown-yellowish, the rest of the segments brown; the tergites and sternites of the abdomen dark brown. Spur formula of both males and females is 1.2.3. The wings are brown, the forewings with pale spots on the apical part; the length of the anterior wing of males 12–12.5 mm, of females 14–15 mm.

**Male genitalia** (Figs. 9–13): In dorsal view, the spinulose zone of tergite VIII covered scarcely with black spines; in lateral view, the dorsal edge slightly sinuate. Segment IX broadly dilated on the anterior margin, narrowing on the ventral portion; the preanal appendage broadly oval, somewhat narrowing at the tip. The dorsal part of the inferior appendage laterally is directed towards posterior, the dorsal edge is almost straight, subdistal part V-shaped excised, the sides of the excision are triangular; inner surface covered with short black spines; such spines are also found on the ventral edge of the dorsal portion; the ventral part of the inferior appendage is rather broad, nearly quadrangular. The parameres of the phallic apparatus are longer than the phallus and possess numerous setae on the dorsal surfaces.

**Female genitalia** (Figs. 14–16): In dorsal view, segment IX is narrow, the sides are rounded, the posterior margin is visible; tubular pieces of segment X deeply excised medially, the side margins sinuate towards the tips; the tips with two small projections the ventral surface of the tubular

pieces with a few dark brown spots; in lateral view the dorsal edge of the supragenital plate is shorter than the ventral edge; the posterior edge oblique, roundly excised on the ventral half, becoming vertical towards the ventral corner, this part of the supragenital plate is strongly sclerotized. The side lobes of the vulvar scale large and apically rounded, the median lobe is short and narrow, with a rounded apex.

**Remarks.** *Ecclisopteryx aksu* sp. n. is closely related to *Ecclisopteryx dalecarlica* Kolenati, 1848 (SCHMID, 1956), but the following differences are seen in the male genitalia: the spinulose zone of tergite VIII of *E. dalecarlica* covered densely with black spines, the preanal appendages roundly oval in lateral view, whereas in the new species the black spines on the spinulose zone are scarce and the preanal appendages narrower towards the tips; the inferior appendages of *E. dalecarlica* with a broad lobe ventrally and evident concavity on the dorsal part, while in the new species there is not a ventral lobe and the dorsal part only slightly depressed. The differences in the female genitalia are as follows: in *E. dalecarlica* the margin between the tubular pieces of segment X slightly excised medially so that the tubular pieces are short, in *E. aksu* sp. n. the median excision is deep and the tubular pieces are long with two pointed projections apically; the supragenital plate in *E. dalecarlica* with a small excision on the posterior edge in lateral view, in *E. aksu* sp. n. the excision is rather deep, rounded and dorsal part of the posterior edge is obliquely truncated.

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