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Terellia (Cerajocera) rhapontici n. sp., a new tephritid fly from the Swiss alps (Diptera: Tephritidae)

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Terellia (Cerajocera) rhapontici n. sp. is described and illustrated, and its phylogenetic relationsships are discussed. The fly was reared from flowerheads of the composite *Rhaponticum scariosum,* which is remarkable as this plant is not among known tephritid host genera.

INTRODUCTION

Cerajocera, considered as subgenus of *Terellia* by KORNEYEV (1987), has a holarctic distribution. It contains 13 species and 2 subspecies. Two species occur in the nearctic, the others in the palaearctic region. All species with known biology feed on capitula or stems of members of the composite, tribe Cardueae. The species described below was reared and swept from the flowerheads of *Rhaponticum scariosum (= Centaurea rhapontica, Leuzea rhapontica),* an endemic composite of the Western and Central alps (HESS, LANDOLT & HIRZEL, 1980). This plant has not yet been recorded as host for fruit-flies.

Several *Terellia* spp. and other fruit-fly genera have been introduced to North America as biological control agents against adventive, originally West palaearctic composites, which have become noxious weeds (HARRIS, 1984; JULIEN, 1982).

The tribe Terelliini was revised by KORNEYEV (1985). He considered *Terellia* and *Cerajocera* as distinct genera differing in wing pattern and in the shape of the ♂ aedeagal glans. Recently, KORNEYEV (1987) described *Terellia (Cerajocera) clarissima* from *Jurinea mollis* in the Southern Ukraine with entire hyaline wings (as in typical *Terellia)* and the shape of the ♂ aedeagal glans as in *Cerajocera.* He concluded that *Cerajocera* is a subgenus of *Terellia* differing only in the shape of the ♂ aedeagal glans. Furthermore species of *Cerajocera* tend to attack plants with larger capitula than in *Terellia* s. str. (STRAW 1989).

The subsequently adopted terminology follows MCALPINE (1981), with the modifications proposed by FOOTE & STEYSKAL (1987) and KORNEYEV (1985).

DESCRIPTION

Terellia (Cerajocera) rhapontici n. sp.

General body colour yellow-brownish in dry mounted specimens, yellow-greenish in life.

Head (fig. 2): Scapus and pedicel with dark spots and black hairs on upper margin. First flagellomere, palpi and proboscis orange. Pedicel without enlarged

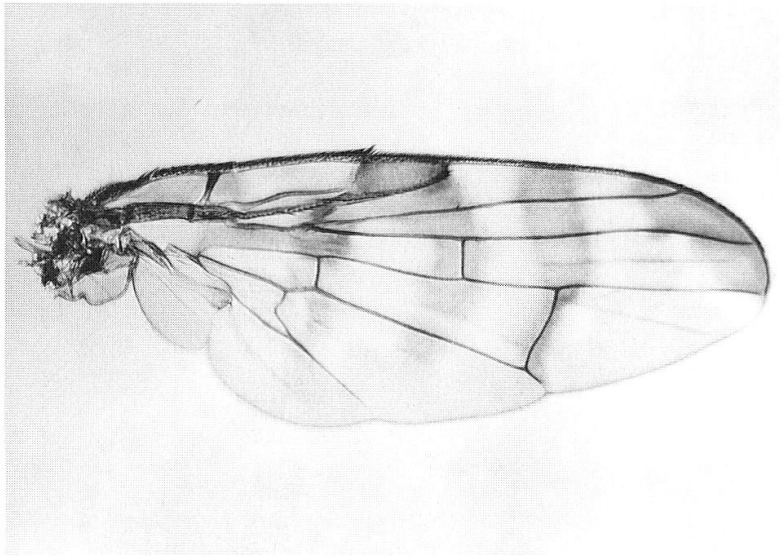


Fig. 1. Wing of *Terellia (Cerajocera) rhapontici* n. sp.

process. Antennae closer together than the diameter of an antenna base. Palpi and proboscis with white and black hairs, palpi not extending beyond oral margin. Gena about ¼ as high as eye. Orbits with white and black hairs. All main bristels black, except postocellar and postocular bristles.

Thorax (fig. 3): Scutum covered with dense white hairs, blackish dull except laterally and posteriorly, with 3 longitudinal darker stripes. Hind margin of black area of scutum with a deep triangular incision in the middle reaching the anterior supraalar bristle. Prescutellar acrostichal and dorsocentral setae on black spots. Scutellum uniformely yellow-brownish, only laterally at the base with one pair of small black spots. Pleural stripes distinct. Katepisternum and meron each with deep black area. All bristles black, except proepisternal bristles.

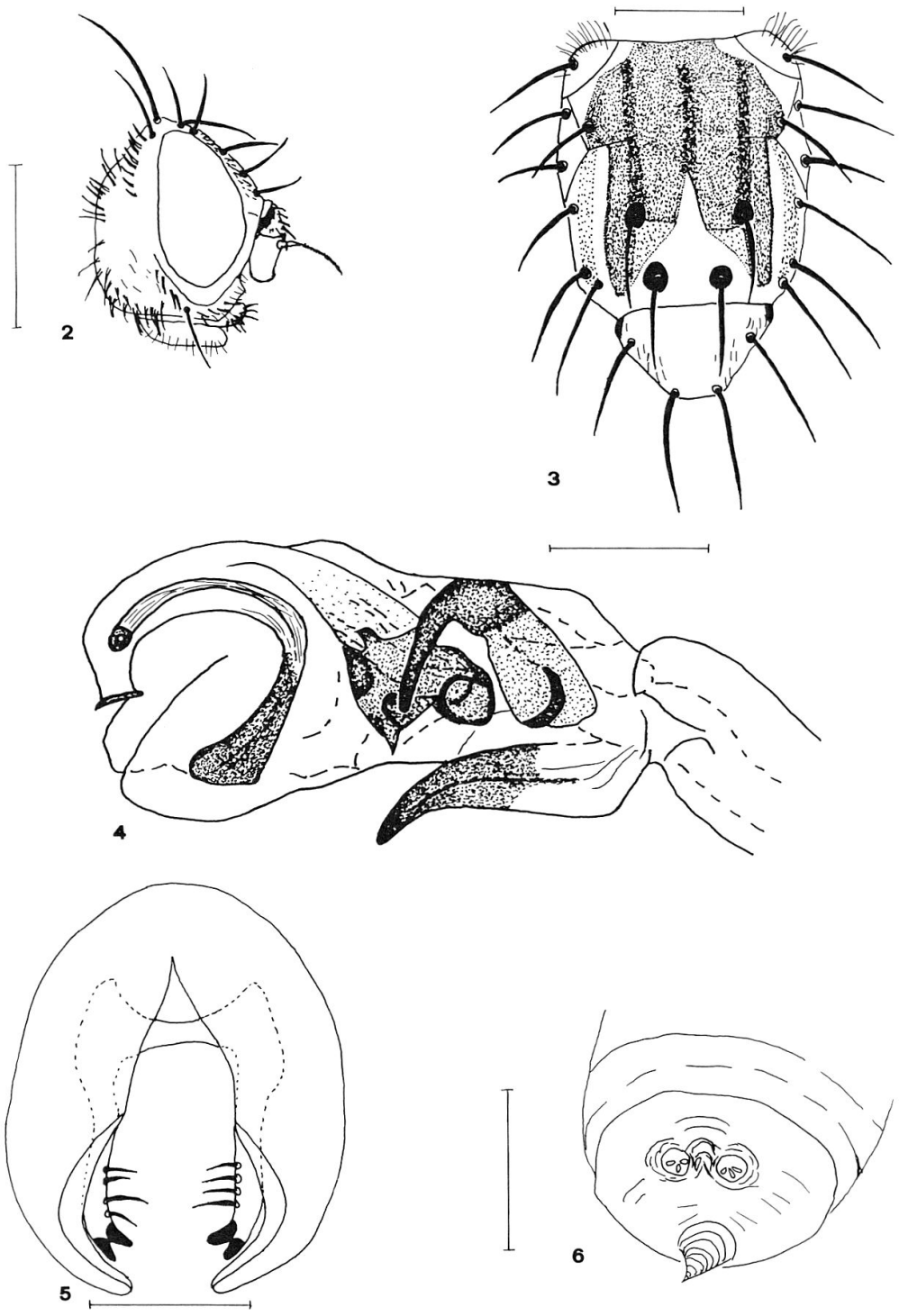
Legs: Yellow-brown, femora sometimes with indistinct black markings.

Wing (fig. 1): With 4 orange, brownish-framed crossbands: subbasal crossband stretching from R1 to CuA2, c entirely hyalin; discal crossband ranging from C to the middle of dm; subapical and apical crossband entirely separated, sometimes only narrowly.

Abdomen: Covered with black and white hairs; black hairs especially at hind margin of the tergites. ♂: Tergites 3–5 each with a lateral and a medial pair of dark spots along upper margin of tergite. Aedeagal glans as in fig. 4. Epandrium as in fig. 5. ♀: Tergites 3–6 each with a medial pair of dark spots, lateral spots indistinct, sometimes absent. Oviscape brown, black at base and apex, covered with black hairs, shape as in fig. 7. Tip of aculeus evenly rounded as in fig. 8. Oviscape longer than last 4 tergites combined.

Measurements (in mm). General body size ♂ 4.32–6.64 (5.78 ± 0.52) (n = 18), ♀ 4.96–6.24 (5.61 ± 0.37) (n = 10). Wing length ♂ 3.84–5.52 (4.97 ± 0.45) (n = 19), ♀ 4.56–5.6 (5.02 ± 0.29) (n = 11). Aculeus length ♀ 2.82–3.16 (2.97 ± 0.15) (n = 5).

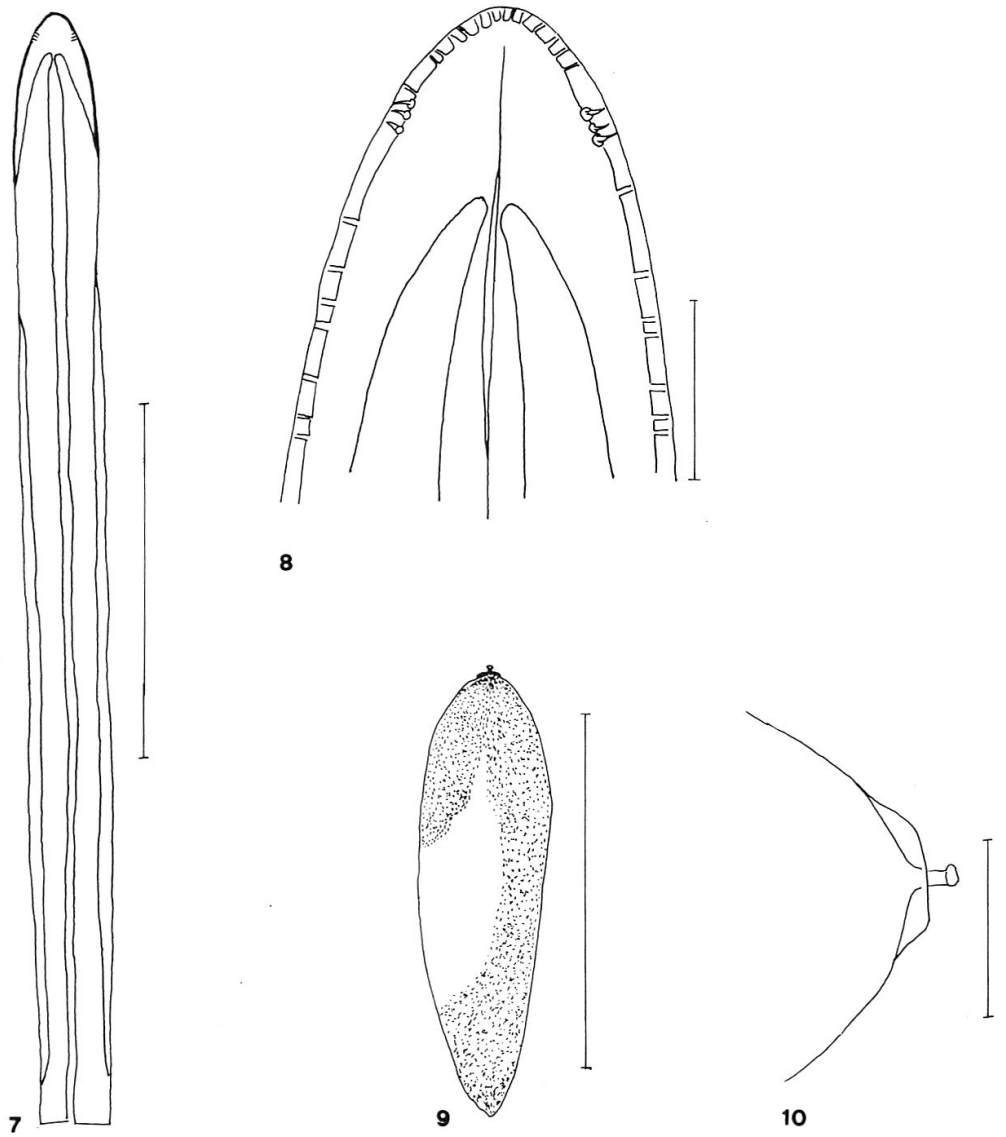
Puparium (fig. 6): mostly orange-brown, but dark brown posteriorly, anterior spiracle with 8 openings (only one puparium checked), with one central, needle-like process below posterior spiracles. Length: 4.7–5.6 mm (n = 3).



Figs. 2–6. *Terellia (Cerajocera) rhapontici* n. sp. 2, Head profile ♂. 3, Scutum, dorsal view ♂. 4, Aedeagal glans ♂. 5, Epandrium, dorsal view ♂. 6, Puparium, posterior view. – Scale lines: Figs. 2, 3, 6 = 1 mm, fig. 4 = 0.1 mm, fig. 5 = 0.2 mm.

Eggs: Oblong-oval, as in fig. 9, micropyle as in fig. 10. Length: 1.2–1.4 mm (n = 13).

Material examined: HOLOTYPE ♂ (not dissected, but aedeagal glans exposed), *Switzerland:* Graubünden, Samedan, 1950 m, 27.IX.1988, reared from



Figs. 7–10. *Terellia (Cerajocera) rhapontici* n. sp. 7, Aculeus ♀. 8, Tip of Aculeus ♀. 9, Egg. 10, Micropyle of egg. – Scale lines: Figs. 7, 9 = 1 mm, figs. 8, 10 = 0.1 mm.

flowerheads of *Rhaponticum scariosum,* emerged 28.III.1989 (B. MERZ) (author's collection).

PARATYPES, *Switzerland:* 2 ♂♂, 1 ♀, Ticino, Cadagno, 2000 m, 21.VII.1983, swept on *Rhaponticum scariosum* (W. SAUTER); 3 ♂♂, 1 ♀, Graubünden, S-chanf, VIII.1958, reared from flowerheads of *Rhaponticum scariosum,* emerged V.1959 (P. WEBER); 5 ♂♂, 3 ♀♀, Graubünden, Samedan, 1950 m, 23.VII.1988, swept on *Rhaponticum scariosum* (B. MERZ); 10 ♂♂, 4 ♀♀, Graubünden, Samedan 1950 m, 22.VII.1989, swept on *Rhaponticum scariosum* (B. MERZ) (Federal Institute of Technology, Entomology, Zürich; Tel Aviv University; British Museum (Natural History), London; Schmalhausen Institute of Zoology, Kiev; author's collection).

BIOLOGY

Terellia (Cerajocera) rhapontici lives in flowerheads of *Rhaponticum scariosum* (Compositae), where it feeds first on the seeds and later on the receptacle. Pupation and overwintering seems to take place in soil or in the host. In the laboratry flies emerged from March to May, but it is probable that in nature they would emerge only in July. Flies were swept on subalpine and alpine meadows between 1600 and 2000 m, where they were sitting on the host plant.

PHYLOGENETIC CONSIDERATIONS

Terellia rhapontici belongs to a group constituted by *T. lappae* CEDERHJELM, *T. ceratocera* HENDEL and *T. plagiata* DAHLBOHM which is defined by the evenly rounded tip of aculeus and 4 well developped crossbands. *T. lappae,* which lives in the flowerheads of *Onopordum* spp., can be distinguished from *T. rhapontici* by the yellow-brownish bristles and the short oviscape (as long as last 3 tergites combined). *T. plagiata* and *T. ceratocera,* which both live on *Centaurea scabiosa* s. lat., have the antennae more separated than the width of the scapus. The ♂ have a characteristic process on the upper margin of the pedicel, which is missing in *T. rhapontici.*

T. tussilaginis FABRICIUS, which lives in the flowerheads of *Arctium* spp., has a similar wing pattern as *T. rhapontici,* but the subbasal crossband stretches from C to cup not only from R1 to cup as in *T. rhapontici.* Furthermore *T. tussilaginis* has orange-brown scutum and katepisternum, and the tip of the aculeus is angular rather than rounded (WHITE, 1988).

T. rhapontici resembles externally the nearctic *T. occidentalis* SNOW. But both nearctic species, *T. occidentalis* and *T. palposa* LOEW, are separated clearly from all palaearctic species by the narrow, pointed tip of aculeus.

T. nigronota KORNEYEV, *T. clarissima* KORNEYEV and *T. armeniaca* KORNEYEV, which are described from Russia, have all a reduced wing pattern.

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ZUSAMMENFASSUNG

Terellia (Cerajocera) rhapontici n. sp. wird beschrieben und abgebildet. Ihre phylogenetische Stellung in der Untergattung *Cerajocera* wird diskutiert. Die neue Art wurde aus Blütenköpfen der Compositae *Rhaponticum scariosum,* einer endemischen Pflanze der West- und Zentralalpen, gezüchtet. Diese Pflanze wird zum ersten Mal als Wirt für Tephritidae nachgewiesen.

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