A new species of *Diazosma* from Tibet (*Diptera, Trichoceridae*)

Ewa KRZEMIŃSKA

Received: 28 May 1994
Accepted for publication: 30 Sep. 1994

Genus *Diazosma* BERGROTH (1913) was distinguished from all other members of the family by its long, sinuously curved vein A2. Until last year the genus was considered a monotypic one; however, a revision by STARY and MARTINOVSKY (1993) revealed three species: *D. hirtipenne* (SIEBKE, 1863) in north-western and central Europe, *D. seclusum* STARY and MARTINOVSKY (1993) found in the Republic of Czech and in Slovakia, and *D. subsinuatum* (ALEXANDER, 1916) known from North America and Canada (the species was resurrected from synonymy with *D. hirtipenne* by STARY and MARTINOVSKY, op. cit.).

In the collection of British Museum (Natural History) I have distinguished two specimens from East Tibet, apparently representing a different species of *Diazosma*.

With the four species of the genus known it is now possible to define the generic characters of *Diazosma* and to compare with the other Holarctic genus of the family, *Trichocera* MEIGEN.

**Material.** Besides two specimens of a new species, the following materials were studied: *D. hirtipenne*: 1♀, Nationalpark Engadin, W.N.P.K. Alps, Grimmer, 2850 m, 5 viii 1946, (F. KEISER; MHNN); 1♂, Knebworth, England (BMNH); *D. subsinuatum*: 1♀, Prospect Or, 27 v 1921 (det. ALEXANDER, 1921; H.G. DYAR coll; SI); 1♀, Eagle Crk. Or., Forest Res., 1 vii 1917 (A.L. MELANDER; det. ALEXANDER 1964; ALEXANDER Collection; SI); 1♀, Oslar, Platte Canyon, Col., 24 viii 1915 (A.L. MELANDER; SI); 1♀, Longmire Spr. Wash., 24 viii 1925 (A.L. MELANDER; det. ALEXANDER; SI); 1♀, Eastport Me., vii 1915 (no other data; SI); 1♀, Mt Hood 3000 ft, Or., 29 vii 1921 (A.L. MELANDER;
SI); 2 ♂♂, Cache Co, Cowley Camp sum., 23-31 viii 1978 (HANSON, Mal. trap; det. H. PRATT; PRATT coll.); 1 ♂, Jaffrey, N.H., 18 vi (SI).

Abbreviations:
BMNH – British Museum (Natural History), London, Great Britain
SI – Smithsonian Institution, Washington, USA
MHNN – Musée d’histoire naturelle, Neuchatel, Switzerland

**Diazosma tibeticum**, sp. nov.
Figs 1, 2, 6-12


Diagnosis. Male: large, regularly curved parameres exceeding in length the central apodeme which is straight and slightly longer than the penis (Fig. 8) (In *D. hirtipenne* central apodeme is small and parameres shorter than the penis; in *D. seclusum* central apodeme is still more reduced and parameres irregularly curved; in *D. subsinuatatum* central apodeme is very long and bifurcate and parameres small; Fig. 5). Female: ovipositor triangular in lateral aspect, as in *D. subsinuatatum*; spermathecae with ducts curved, almost as long as their diameter (Figs 9-11).

Description. Size: male, body size 8 mm, wing 8 mm; female body size 7.5 mm, wing 9 mm. Colour: generally light dull brown, including head, palpi, antennae and legs; female with dark brown infuscated prescutum, dark brown sternite 9 and light yellow ovipositor, male with somewhat darker abdomen. Posterior margins of abdominal segments blackish, making impression of thin stripes (visible only under a binocular). Meron not conspicuously darker than the coxae II and III. Wings light brown infuscated, veins light brown.

Head: 1st flagellomere ca. as long as an eye diameter, the subsequent ones subequal. Palpi very long, but curved under the specimens and thus poorly visible; proportions probably similar to *D. hirtipenne* (Fig. 13).

Legs: small, single tibial spurs present; 1st to 2nd tarsomeres ratio is like 1:0.57-0.60. Wings pictured in Figs 1-2.

Terminalia. Male (Figs 6-12): sternite 9 with medial incision, unlike that of *D. subsinuatatum* (Figs 3-5). Basistyli joined ventrally by small, triangular processes forming low, straight bridge; each basistylius provided with strong, hooked process at the base, larger than that in the *Trichocera* species (compare Fig. 14).

Dististylius with blunt, rounded apex. Aedeagus (Figs 7, 8): penis small, not exceeding the parameres which are large and curved. On a dorsal side central, single structure present, called further the "central apodeme"; it is smaller and not recurved as in *D. subsinuatatum* (Figs 4, 5) but larger than in *D. hirtipenne* (basing on the drawings in STARY and MARTINOVSKY 1993).

Fig. 13. Relative length of palpi in *Diazosma* and *Trichocera*; *Ds* – *Diazosma subsinuatum*; *Dh* – *Diazosma hirtipenne*; *T* – *Trichocera*; head, relative head length (to clypeus, between arrows); section in bold – length of last palpomere.
Female (Figs 9-12): lateral outline of the ovipositor triangular, similar to *D. subsinuatum* from USA; genital plate undistinguishable from the European and American species. Spermatotheca large, coherent sclerotized parts of ducts curved, almost as long as the spermatotheca diameter.

**Remarks.** *Diazosma tibeticum* is a representant of high altitude Tibetan fauna (over 4000 m). In some features it seems to remind the North American species, *D. subsinuatum* – prominent central apodeme in the male and triangular shape of ovipositor’s lateral outline. However, the dististyli are bluntly rounded as in European species, *D. hirtipenne*.

**Diazosma and Trichocera – a comparison of some generic characters**

Besides the already defined differences, as: vein A2 long in *Diazosma* and ovipositor composed of two soft lobes, both genera differ also by the following characters:

1. Mouthparts and palpi (Fig. 13): in *Diazosma* mouthparts are more expanded; labelli in both genera large and covering the tip of labrum. Palpi in *Diazosma* are very long, 2.5-3 times the head length (measured to the end of clypeus, as in Fig. 13); last palpomere extremely long, thin, without medial constriction, longer than 1/3 of total length of the palp and longer than head length. In *Trichocera* palpi are short, 1-1.5 times as long as head length; last palpomere medially constricted, only ca. 1/4 of total length of the palpi and much shorter than head length (extreme length of the palp was noticed for the first time by EDWARDS, 1938; lack of medial constriction was mentioned in PRATT and PRATT, 1984).

2. Meron: in *Diazosma* small, ca. as large as 1/4 of the katepisternum area; in *Trichocera* large, ca. 1/2 of katepisternum size (compare KRZEMIŃSKA 1991).

3. Legs: proportions of tarsomeres in both genera similar. Tibial spurs (Plates 1-2): in *Diazosma* single, delicate spur, transparent under microscope transient light, irregularly curved and scarcely covered with inconspicuous scales. In *Trichocera* – a pair of strong, robust, regularly conical spurs, black under a microscope transient light and densely covered with scales. (Single tibial spur in *Diazosma* was recognized a generic feature by DAHL and ALEXANDER, 1976). Tarsal claws (Plates 3-4): less curved and with smaller basal protuberance in *Diazosma*.

4. Genitalia, male: in *Diazosma* the so called bridge (Fig. 14), formed by mesoventral projections of the basistyli, is low; sclerotization vanishes medially; outwardly made into thick membrane covering the aedeagal complex which expands far beyond the sclerotized part of the bridge. In *Trichocera* bridge strongly arcuated, well distinguished from the membrane; aedeagal complex protected by the bridge (only large parameres sometimes expand outwards). The aedeagal complex in *Diazosma* (Fig. 15) is strongly fused at dorsal side and forming central spicule (called here "central apodeme", first illustrated by STARY and MARTINOVSKY, 1993). In *Trichocera* the dorsal connection is narrow; central apodeme absent.

Female: hypogynial valves of sternite 8 in *Diazosma* not developed (Fig. 17). Tergite 9 is fused medially with tergite 10 as in *Trichocera*; however, in the latter genus a deep fold between these two tergites makes impression of their being separated.
In *Trichocera* the opening (foramen) in the tergite 10 is large while in *Diazosma* non-existent (Fig. 16). This is probably a functional character: in *Trichocera* a large opening enables movement of a stiff ovipositor upwards (to dorsal side) during the copulation, thus allowing the entrance of male genitalia from ventral side, between the ovipositor and sternite 8 (NEUMANN, 1958). In *Diazosma*, the cerci are soft and flexible, their ventral margins broadly spaced. Moreover, the sternite 8 is composed of two flexible plates. The resulting ventral gap is probably sufficient for the copulation without the upward movement of the cerci.

**Acknowledgments.** For providing me with materials I am greatly indebted to Dr Brian PITKIN (British Museum, Natural History), to the Curator of dipteran collection of the Smithsonian Institution, to Dr Christophe DUFOUR (Musée d’histoire naturelle, Neuchatel) and Dr Harry PRATT (Atlanta, USA). For stimulating, fierce discussions (never achieving any consensus) I am thankful to Dr Jaroslav STARY (Palacky University in Olomouc, Czech Republic).

**REFERENCES**


Plates 1-4 (top). Tibial spurs: double in *Trichocera* (left), single in *Diasosoma* (right); magn. × 80.

Plates 3-4 (bottom). Tarsal claws in *Trichocera* (left; × 40) and *Diasosoma* (right; × 80).