

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

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Abstract. *Diazosma tibeticum*, sp. n., from East Tibet is described and illustrated. This is the fourth species of the genus known and resembles mostly the American species, *D. subsinuatum* ALEXANDER. The generic characters of *Diazosma* BERGROTH and *Trichocera* MEIGEN are compared and illustrated.

Key words: *Diazosma*, new species, Trichoceridae.

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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.

M a t e r i a l . Besides two specimens of a new species, the following materials were studied: *D. hirtipenne*: 1 ♀, Nationalpark Engadin, W.N.P.K. Alps, Grimmel, 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).

A b b r e v i a t i o n s :

BMNH – British Museum (Natural History), London, Great Britain

SI – Smithsonian Institution, Washington, USA

MHNN – Musee d'histoire naturelle, Neuchatel, Switzerland

Diazosma tibeticum, sp. nov.

Figs 1, 2, 6 - 12

M a t e r i a l e x a m i n e d . H o l o t y p e : 1 male, East Tibet: Posho, 12,500 ft, 17 vii 1936, leg. R.J.H. KAULBACK; B.M. 1937-547. Other material: 1 female, E. Tibet, Posho, 14,000 ft, 24 vii 1936, leg. R.J.H. KAULBACK. Both specimens dry pinned, housed in BMNH, London.

D i a g n o s i s . 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. subsinuatum* central apodeme is very long and bifurcate and parameres small; Fig. 5). Female: ovipositor triangular in lateral aspect, as in *D. subsinuatum*; spermathecae with ducts curved, almost as long as their diameter (Figs 9-11).

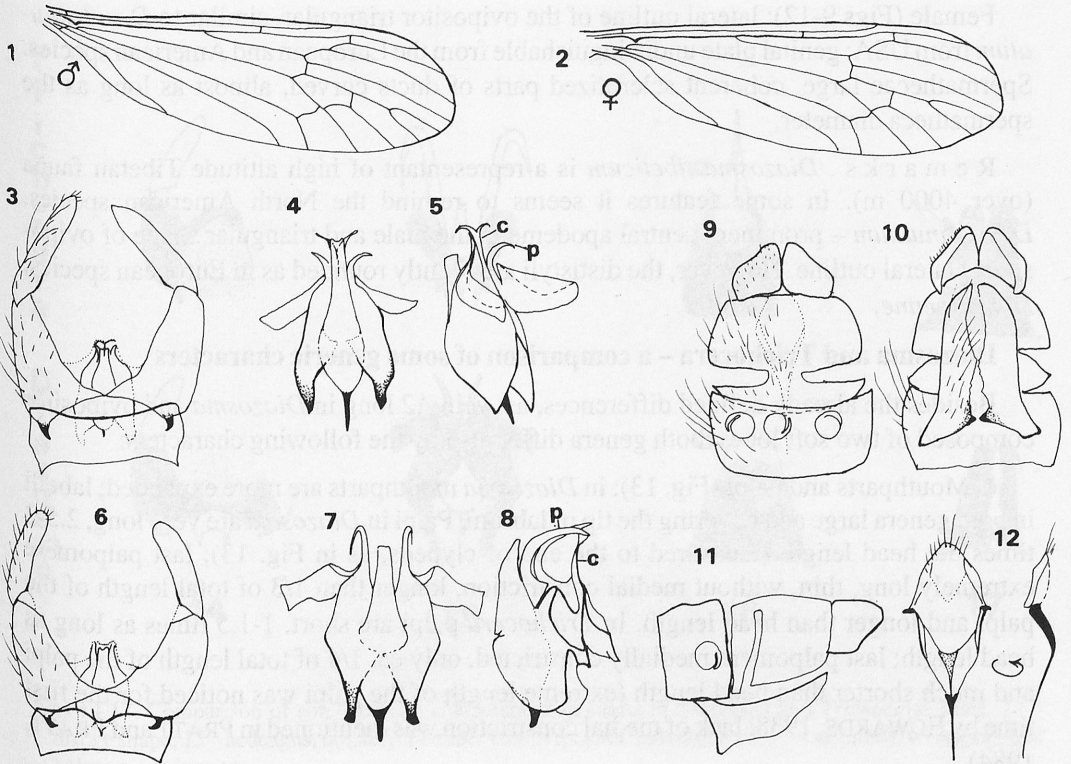
D e s c r i p t i o n . Size: male, body size 8 mm, wing 8 mm; female body size 7.5 mm, wing 9 mm. Colour: generally light dull brown, including head, palpi, antennae and legs; female with dark brown infuscated prescutum, dark brown sternite 9 and light yellow ovipositor, male with somewhat darker abdomen. 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 *D. subsinuatum* (Figs 3-5). Basistyli joined ventrally by small, triangular processes forming low, straight bridge; each basistylus provided with strong, hooked process at the base, larger than that in the *Trichocera* species (compare Fig. 14).

Dististylus 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. subsinuatum* (Figs 4, 5) but larger than in *D. hirtipenne* (basing on the drawings in STARY and MARTINOVSKY 1993).



Figs 1-12. 1-2. Wings of *Diazosma tibeticum*, sp. n.: 1 – male; 2 – female. 3-5. *Diazosma subsinuatum*, male genitalia: 3 – ventrally; 4 – aedeagus, ventrally; 5 – same, dorsolaterally. 6-12. *Diazosma tibeticum*, sp. n. 6-8 male genitalia: 6 – ventrally; 7 – aedeagus, ventrally; 8 – same, dorsolaterally. 9-12. female genitalia: 9 – dorsally; 10 – ventrally; 11 – laterally; 12 – genital plate ventrally and laterally.

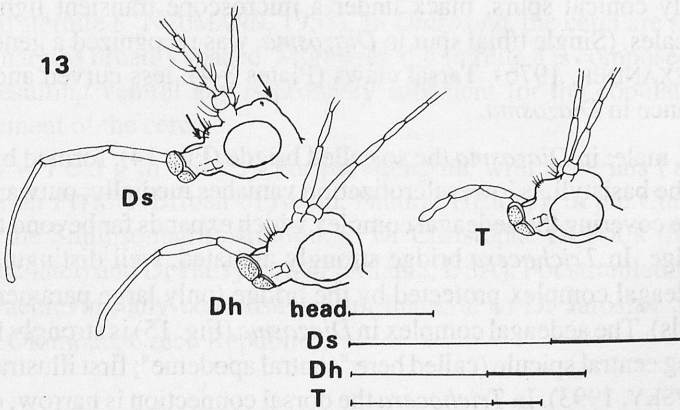


Fig. 13. Relative length of palpi in *Diazosma* and *Trichocera*; Ds – *Diazosma subsinuatum*; Dh – *Diazosma hirtipenne*; T – *Trichocera*; head, relative head length (to clypeus, between arrows); section in bold – length of last palpomere.

Female (Figs 9-12): lateral outline of the ovipositor triangular, similar to *D. subsinuatatum* from USA; genital plate undistinguishable from the European and American species. Spermathecae large, coherent sclerotized parts of ducts curved, almost as long as the spermatheca 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. subsinuatatum* – 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*.

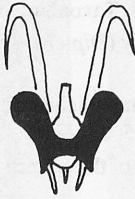
Diazosma and Trichocera – a comparison of some generic characters

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:

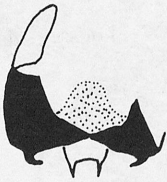
1. Mouthparts and palpi (Fig. 13): in *Diazosma* mouthparts are more expanded; labelli in both genera large and covering the tip of labrum. Palpi in *Diazosma* are very long, 2.5-3 times the head length (measured to the end of clypeus, as in Fig. 13); last palpomere extremely long, thin, without medial constriction, longer than 1/3 of total length of the palpi 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 palpi 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 brigde (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: hypogential 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.

Trichocera



Diazosma



14

15

16

17

Figs 14-17. Comparison of some generic characters of genitalia in *Diazosma* and *Trichocera*. Male: 14 – bridge shape; 15 – aedeagus, dorsally. Female: 16 – ovipositor and tergite 10; 17 – sternite 8; v – hypogenital valve; o – ovipositor.

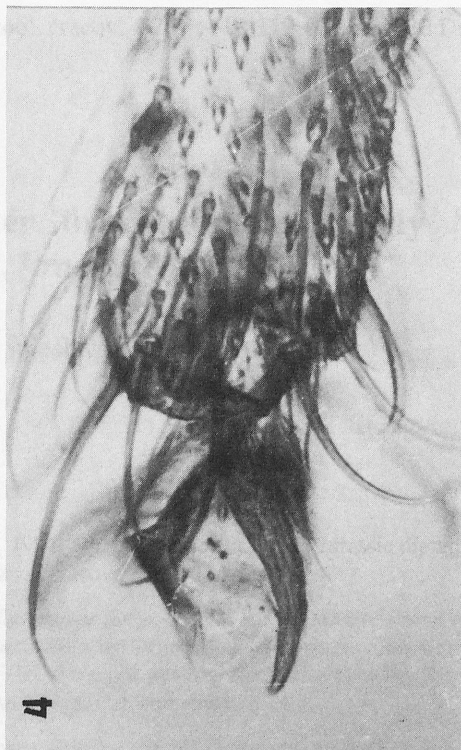
In *Trichocera* the opening (foramen) in the tergite 10 is large while in *Diazosma* non-existent (Fig. 16). This is probably a functional character: in *Trichocera* a large opening enables movement of a stiff ovipositor upwards (to dorsal side) during the copulation, thus allowing the entrance of male 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.

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Plates. 1-4. 1-2 (top). Tibial spurs: double in *Trichocera* (left), single in *Diazosma* (right); magn. $\times 80$. 3-4 (bottom). Tarsal claws in *Trichocera* (left; $\times 40$) and *Diazosma* (right; $\times 80$).

