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Tipula (*Savtshenkia*) *tulipa* sp. n. from xerothermic valleys of the Swiss Alps (Diptera: Tipulidae)

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Tipula (*Savtshenkia*) *tulipa* sp. n. is described from the Swiss regions Engadine and Valais, both under continental climatical conditions. *T. (S.) tulipa* sp. n. is compared with the species of the *grisescens* group of *Savtshenkia*. *T. (S.) villeneuvei* STROBL which was considered as subspecies of *T. (S.) goriziensis* STROBL by THEOWALD (1978), and later subspecies of *T. (S.) grisescens* ZETTERSTEDT (THEOWALD & OOSTERBROEK, 1981) is given species rank.

The first known specimen of *Tipula* (*Savtshenkia*) *tulipa* sp. n. was caught in the beginning of August 1979 on a very hot locality in Val S-Charl (Engadine), at the foot of a limestone cliff in an open *Pinus sylvestris* forest of the *Erico-Pinion*. Though the specimen immediately seemed interesting, no other could be caught in the region in spite of intensive research. A second specimen was taken in beginning of July 1980 by a light trap positioned in a very warm and sunny locality of Central Valais, by M. HAECHLER (Station fédérale de recherche agronomique de Changins) to whom I am most grateful for this valuable collecting. Both specimens being perfectly identical, it was then possible to describe the new species of which the female remains to be discovered. M. THEOWALD VAN LEEUWEN must also be thanked for his advice and for making loan material of *T. (S.) villeneuvei* available. This publication is part of the author's doctorate at the University of Neuchâtel.

Tipula (*Savtshenkia*) *tulipa* sp. n. fig: 1 a-e, 5 a

Type material. Holotype ♂: Vuisse (CH-Valais), 518 m, Swiss coordinates 590/120, 3.-9.8.1980, light-trap, HAECHLER leg. (Musée d'histoire naturelle, Neuchâtel, alcohol); paratype: 1 ♂, Clemgia Schlucht, Val S-Charl, 1580 m, Swiss coordinates 818/181, 6.7.1979, sweep net, C. DUFOUR leg. (Zoological Museum Amsterdam).

Description ♂. Body length: 13 mm; wing length: 13.5 mm. Head grey; nasus distinct; palpi and rostrum dark grey; 13 cylindrical antennal segments; scape and pedicel light brown; flagellum black; first flagellar segment as long as scape; total length of antenna 4.5 mm; eyes small, widely separated below (space 3 times wider than scape).

Thorax grey bearing 4 dark praescutal stripes, the medium fainter towards front of praescutum and distinctly separated by the grey colour of thorax, the lateral totally dark; wings light grey with a few hyaline marks in cell M, Cu and at both ends of the dark stigma; neala (squama) without bristles; hairs on sternopleu-

rites distinct; coxae grey; trochanter light brown; femora yellow, darkened only on their apical tenth; tibiae and tarsi brown; tibial spurs 1, 2, 2; claws with a secondary tooth.

Abdomen mostly light brown, segments 7-9 darker; hypopygium: posterior extension of 9th tergite as in fig. 1 e; posterior margin of sternite 8 not differentiated; sternite 9 with a brush of strong hairs near base of outer distylus (od; fig. 1 d); od slightly sclerotized on proximal part of hind ridge (fig. 1 a); inner distylus (id) elongated anteriorly (fig. 1 b, 1 c); appendages of the adminiculum well developed and extended upwards (fig. 5 a). Female unknown.

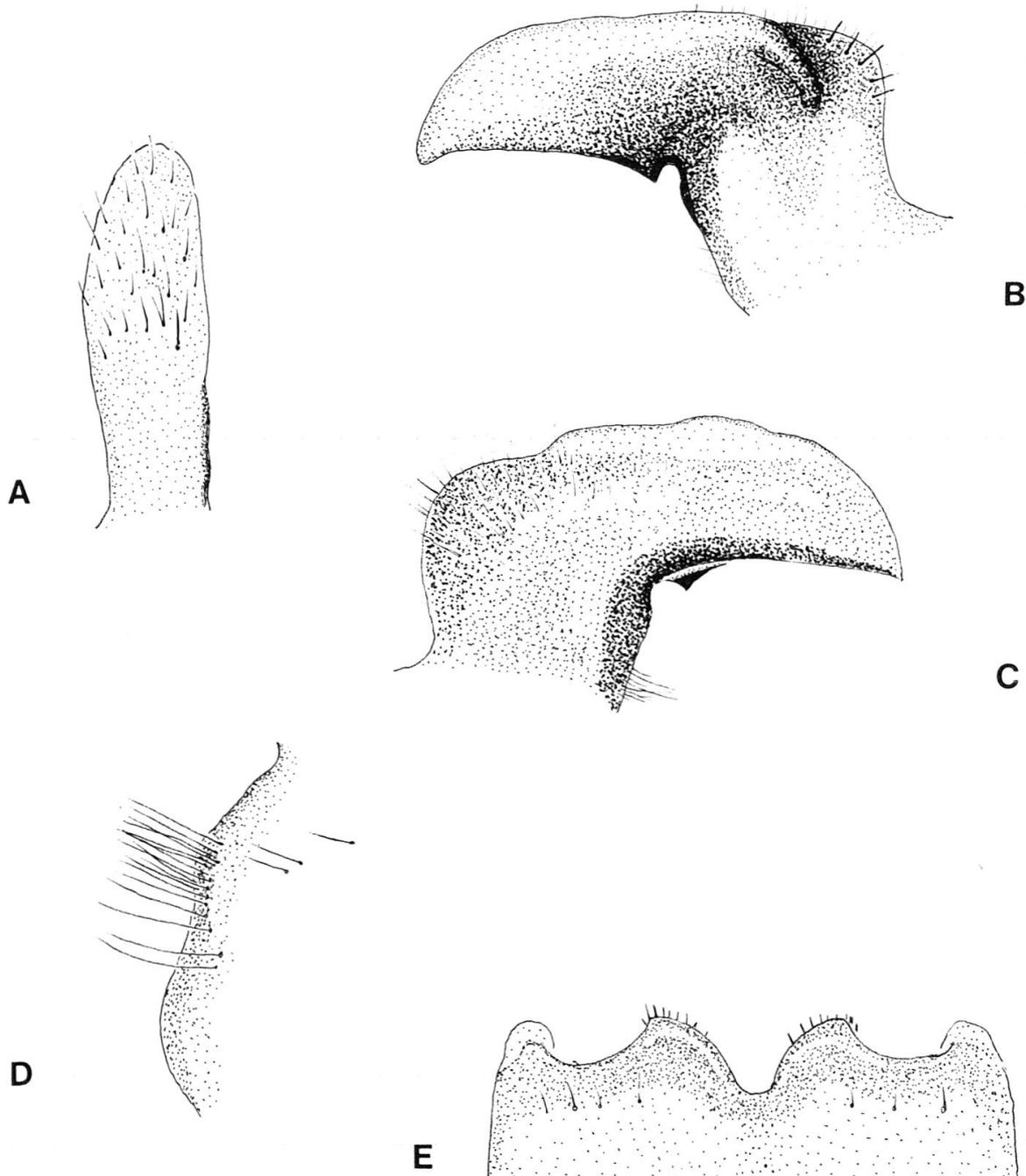


Fig. 1: *Tipula (Savtshenkia) tulipa* sp. n.; A, od outside; B, id outside; C, id inner side; D, brush of hairs on sternite 9 near base of od; E, posterior extension of tergite 9.

Biotope: *Tipula tulipa* sp.n. was collected only twice in both regions of Switzerland that are under a continental climate: Central Valais and Engadine. Rainfall is low in both localities (Vuisse: less than 80 cm; Val S-Charl: less than 100 cm at an altitude of 1580 m). The natural surrounding vegetation is mainly very dry *Pinus sylvestris* forest, on rocky ground well exposed to the sun. In Vuisse large vineyard and a gravely riverbank covered by the bush *Hyppophaë rhamnoides* complete the biotope.

Etymology: anagram of Tipula, in honour of the tipulid workers THEOWALD VAN LEEUWEN and PIOTR OOSTERBROEK from Amsterdam.

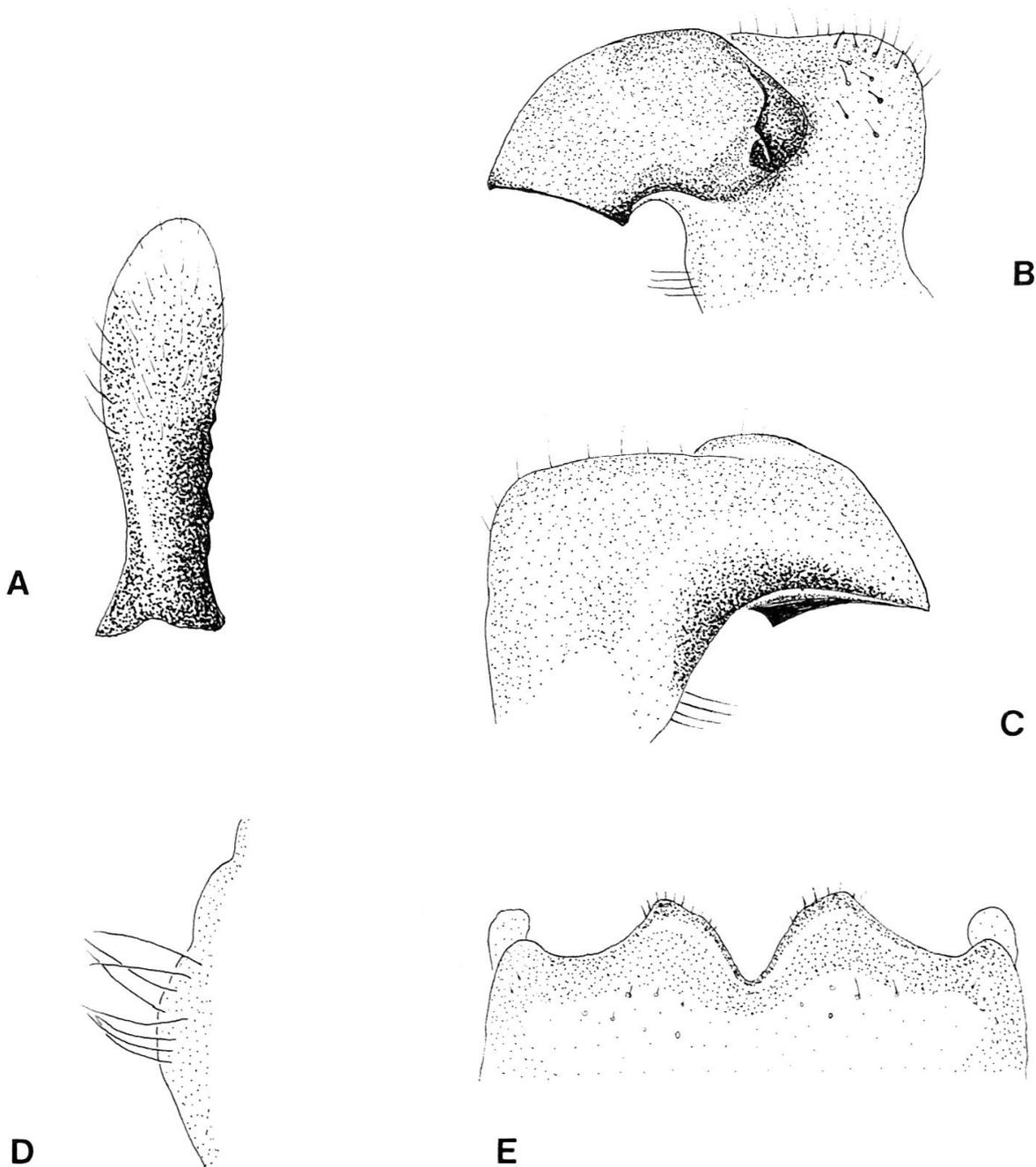


Fig. 2: *Tipula (Savtshenkia) gorziensis* STROBL; A, od outside; B, id outside; C, id inner side; D, brush of hairs on sternite 9 near base of od; E, posterior extension of tergite 9.

DISCUSSION

Tipula (Savt.) tulipa sp. n. is best placed in the *grisescens* group of *Savtshenkia* which with *grisescens* ZETT., *gorizensis* STROBL and *villeneuveii* STROBL now counts four taxa. However, the definition of the group should not mention the lack of a secondary tooth on the claws, as this character is present in *tulipa*.

To enable a comparison between the very similar species of the *grisescens* group and help their recognition, the genitalia of ♂♂ have been reillustrated and main characters which are numbered, listed in short diagnosis.

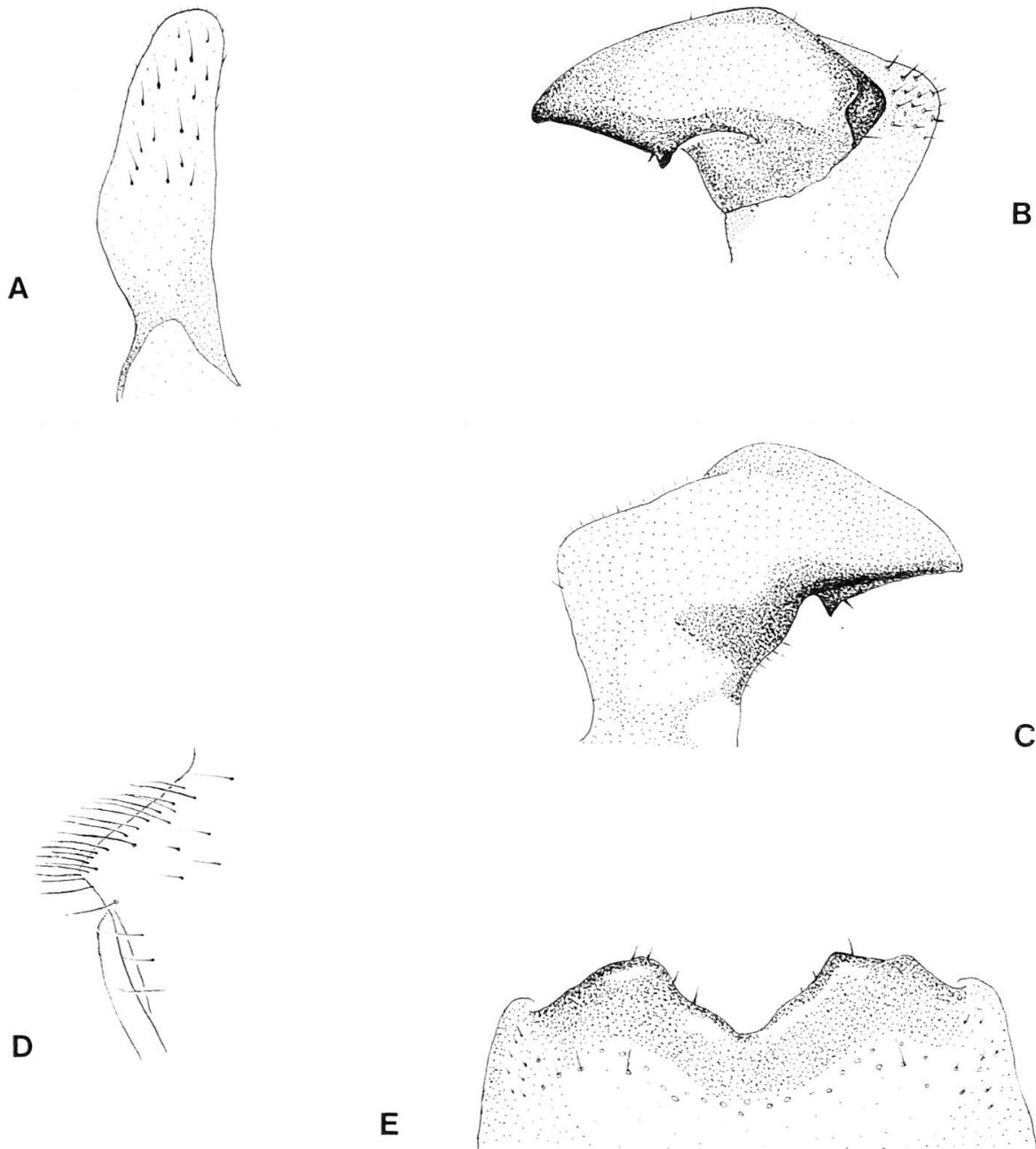


Fig. 3: *Tipula (Savtshenkia) villeneuveii* STROBL; A, od outside; B, id outside; C, id inner side; D, brush of hairs on sternite 9 near base of od; E, posterior extension of tergite 9.

Tipula (Savt.) tulipa sp. n.

Antennae: medium length (1) (4.5 mm, segment 3 = scape), scape light brown (2), flagellar segments cylindrical (3). *Eyes* separated below by 3 x width of scape (4). *Thorax*: medium praescutal stripes separated (5), fainter on front of praescutum (6), lateral stripes not lightened (7), some hairs on sternopleurites (8), wings spotted (9), femora yellow (10), a secondary tooth on claw (11). *Abdomen*: brown (12). *Genitalia* ♂ as in fig. 1 and 5 a: a brush on sternite 9 near base of od (13), appendages of adminiculum distinct (14); ♀: unknown. *Ecology*: xerothermic habitat. *Distribution*: Alps, internal valleys.

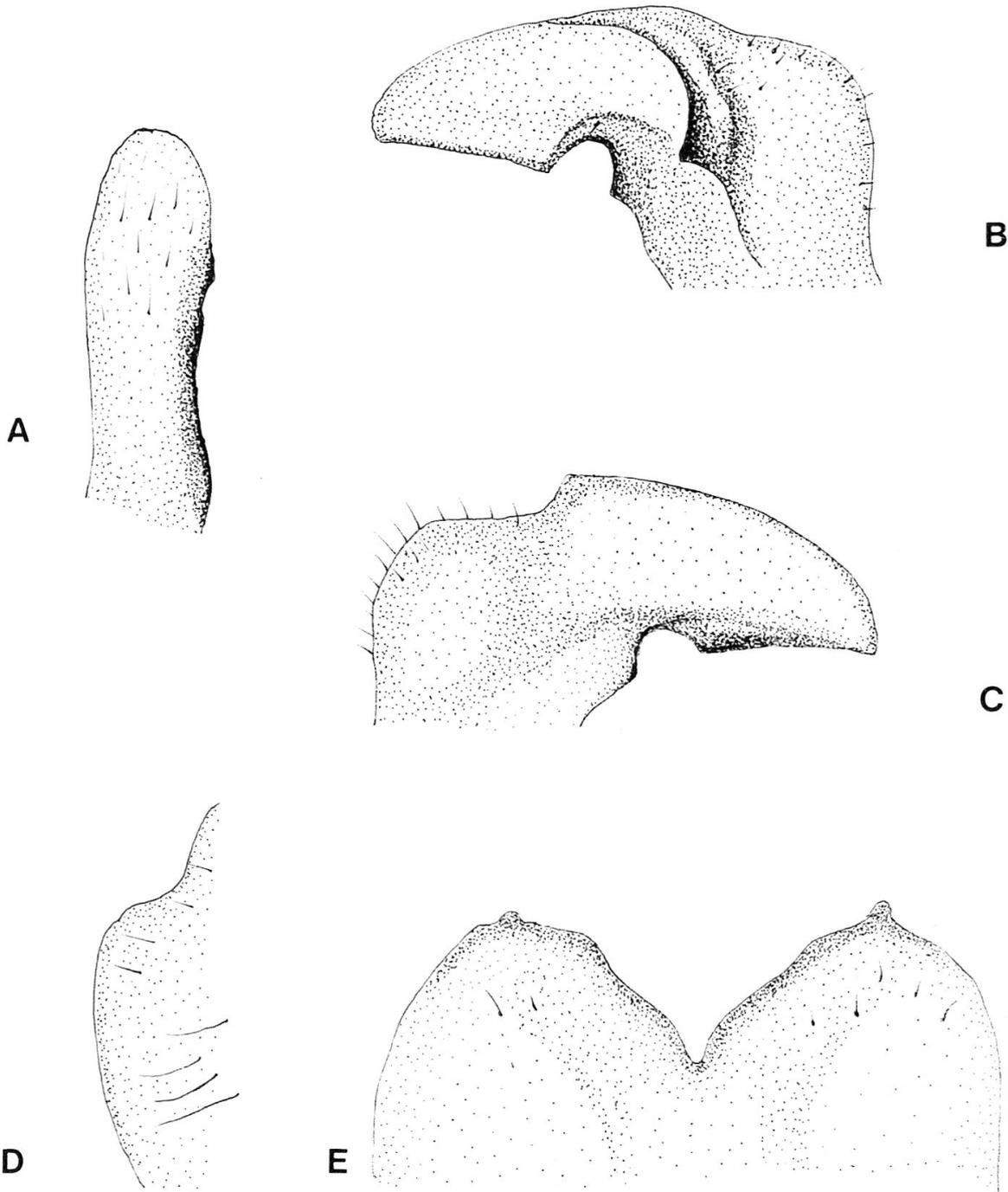


Fig. 4: *Tipula (Savtshenkia) grisescens* ZETT.; A, od outside; B, id outside; C, id inner side; D, side view of sternite 9; E, posterior extension of tergite 9.

Tipula (Savt.) gorziensis STROBL

Antennae: short (1) (3 mm; segment 3 shorter than scape), scape black (2), flagellar segments cylindrical (3). *Eyes* separated below by 2.5 x width of scape (4). *Thorax*: medium praescutal stripes separated (5) and reaching front of praescutum (6), lateral stripes lightened in their middle (7), no hairs on sternopleurite (8), wings faintly spotted (9), femora brown (10), no secondary tooth on claw (11). *Abdomen*: grey (12). *Genitalia* ♂ as in fig. 2 and 5 c: a brush on sternite 9 near base of od (13), appendages of adminiculum distinct (14); ♀ hypovalvae of normal length (15), 9th sternum short (16). *Ecology*: alpine, wet, mossy habitat. *Distribution*: Alps, Carpathians.

Tipula (Savt.) villeneuvii STROBL

Identical to *gorziensis* for characters 1, 2, 3, 4, 5, 7, 11, 13, 14, 15, 16. Can be separated by: medium praescutal stripes fainter on front of praescutum (6), some hairs on sternopleurites (8), spotted wings (9), femora yellow (10), abdomen brown (12). *Genitalia* ♂ as in fig. 3 and 5 b. *Ecology*: xerothermic habitat. *Distribution*: Spain.

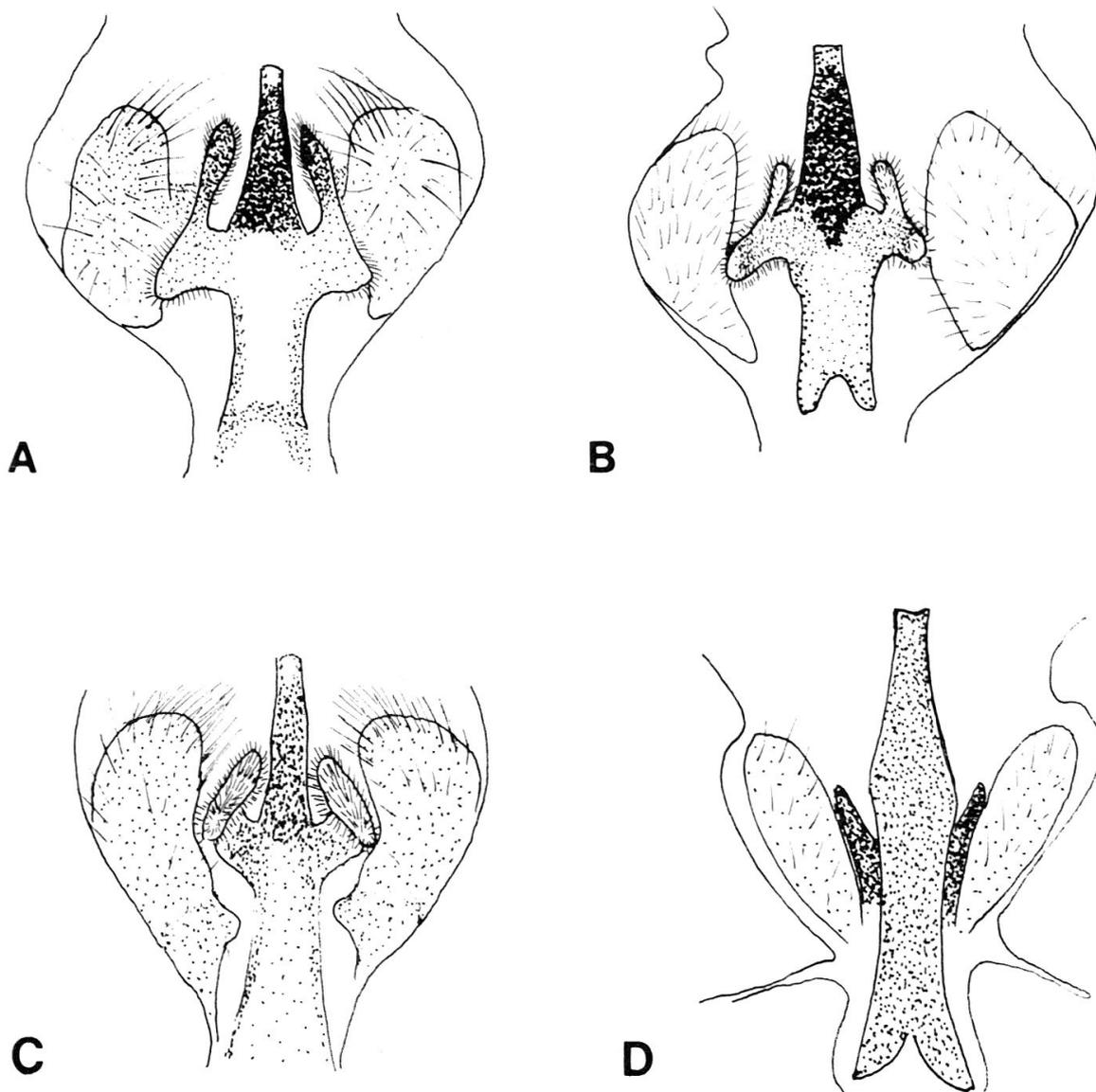


Fig. 5: Appendages of the adminiculum. A, *Tipula (S.) tulipa* sp. n.; B, *Tipula (S.) villeneuvii* STROBL; C, *Tipula (S.) gorziensis* STROBL; D, *Tipula (S.) grisescens* ZETT.

Tipula (Savt.) grisescens ZETT.

Antennae: long (1) (6.5 mm; segment 3 twice as long as scape), scape black (2), flagellar segments nodulous proximally (3). *Eyes* separated below by 4 x width of scape (4). *Thorax*: medium praescutal stripes mostly fused (5) and reaching front of praescutum (6), lateral praescutal stripes not lightened (7), some hairs on sternopleurites (8), wings faintly spotted (9), femora brown (10), no secondary tooth on claw (11). *Abdomen*: grey (12). *Genitalia* ♂ as in fig. 4 and 5 d: no brush on sternite 9 (13), appendages of adminiculum reduced (14); ♀ hypovalvae slightly shortened (15), 9th sternum long (16). *Ecology*: alpine and subalpine wet and mossy habitats. *Distribution*: eurasiatic.

When considering all characters listed above, it appears that *gorizensis* and *villeneuvii* are most similar, except for colour pattern and slight differences in structure of the genitalia. However, body colour could be related to the habitat conditions of the species: xerothermic for *villeneuvii*; wet and alpine for *gorizensis*.

T. (S.) villeneuvii and *T. (S.) tulipa* show similar colour patterns (habitats of both species are much alike), but can be easily separated by many external characters on antennae, eyes and claws. Finally *T. (S.) grisescens* can be separated from *villeneuvii* and *tulipa* by colour pattern as well as by most other characters listed; from *gorizensis*, which also is a grey mountain species, by size of eyes, antennae, extension of praescutal stripes and genitalia.

T. (S.) villeneuvii was considered a subspecies of *gorizensis* by THEOWALD (1978) on the base of similarity of the male hypopygium; later THEOWALD & OOSTERBROEK (1981) have placed it as a subspecies of *grisescens*, referring to the structure of the cerci and to zoogeographical considerations.

According to the characters listed in this study, the first view seems the most appropriate. However, both taxa show clear discriminating structures on the outer distylus (od) and on the appendages of the adminiculum, which justify giving *villeneuvii* species rank, and avoid stating yet any relationships between the species. To establish a correct phylogeny of the *grisescens* group and check its homogeneity, it will be necessary to study many more characters of the hypopygium and take in account also the species of the *subnodicornis* and of the *convexifrons* groups as defined by THEOWALD (1973).

RÉSUMÉ

Tipula (Savtshenkia) tulipa sp. n., tipule nouvelle des vallées xéothermiques des Alpes suisses (Diptera, Tipulidae). - *Tipula (Savtshenkia) tulipa* sp. n. est décrite d'après deux mâles capturés en Engadine et au Valais, dans des régions soumises à un climat continental. *T. (S.) tulipa* est comparée aux espèces du groupe *grisescens* de SAVTSHENKIA. *T. (S.) villeneuvii* STROBL qui a été considérée comme sous-espèce de *T. (S.) gorizensis* STROBL par THEOWALD (1978), puis comme sous-espèce de *grisescens* ZETTERSTEDT par THEOWALD et OOSTERBROEK, 1981, est placée au rang d'espèce.

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