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Podolinella podolica gen. nov. et sp. nov. from the Western Ukraine (*Protura*: *Aceremoidea*)

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ABSTRACT. A new genus, *Podolinella* with one new species, *P. podolica* from Lysa Gora reserve near Zolochiv (Western Ukraine) is described. Its relation with genera with normal striate band and reduced labial palps is discussed.

Key words: Entomology, taxonomy, *Protura*, *Aceremoidea*, new genus, new species, Ukraine.

Podolinella gen. nov.

DIAGNOSIS

Head with 5+5 sensory setae. Postpseudocular (*pps*) seta absent. Labial palp reduced, with 2 setae, single remnant of "tuft" and slender sensilla. Filamento di sostegno with small, nearly smooth calyx and long, simple posterior filament. Pseudoculus more or less round, with short lever.

Meso- and metanotum with two anterior setae (*A2* and *A4*), seta *P2a* nearer to *P3* than to *P2*. Setae *P1a*, *P2a*, *P5* on meso- and metanotum as very short (*Acerentulus* - type) sensillae; *P4a* on metanotum as short, thin sensilla. Pore *sl* presents on meso- and metanotum, *al* absent. Prosternum with no seta *A2*.

Foretarsal sensilla *b'* present, *t1* fusiform, *t3* leaf - like. Sensilla *d* situated proximally to level of *t2*, nearer to *c* than to *e*.

Seta *P3* on abdominal terga II - VI anteriorly to line *P2* - *P4*. Abdominal legs II - II with no terminal vesicle and 2 setae (subapical about two times longer than apical). Urosternite II with no seta *P1a*. Pore *psm* present on urotergite I - VIII, *psl* on VI - VII, *al* on II - VII.

Striate band on abdominal segment VIII well developed, normal. Urosternite VIII with 4 setae in one row. Urotergite X with seta *1a* present (chaetotaxy of urotergite IX and X identical). Hind margin of segments IX - XII smooth. Urosternite XI with 4 setae. Dorsal pore on urotergite XII present. Squama genitalis of female of *Acerentulus* type, with distal prolongation of stylus surrounding acrostylus (acrostylus situated subapically).

Small animals, with habitus similar to *Proturentomon* species.

Type species: *Podolinella podolica* sp. n.

Discussion

The genus *Podolinella* belongs to a large group of *Acerentomoidea* with no apical vesicles and two setae on abdominal legs II and III, with seta *P3* on abdominal terga II - VI situated anteriorly to the row of other *P* setae, with only two (*A2* and *A4*) anterior setae on meso- and metanotum, with foretarsal sensilla *d* nearer to *c* than to *e*, and with reduced labial palps. All such genera are classified by Yin (1983a) in the family *Berberentomidae*. *Podolinella* gen. nov. belongs to a group of genera with normal (not reduced) striate band on the abdominal segment VIII. It shares this character with *Delamarentulus* Tuxen, 1963, *Brasilentulus* Nosek, 1973, *Zangentulus* Yin, 1983, *Gracilentulus* Tuxen, 1963, *Proacerella* Bernard, 1975, and *Tuxenidia* Nosek & Cvijović, 1969.

Delamarentulus and *Brasilentulus* differ so much from the other mentioned genera (especially in the general pattern of the foretarsus) that they can be omitted in the following discussion (Nosek 1973a; Tuxen 1976, 1979).

Zangentulus differs from *Podolinella* in elongated calyx of the filamento di sostegno, foretarsal sensillae *c* and *d* situated very near each other and in dilated, "torch - like" sensilla on the labial palp (Yin 1983b). Unfortunately, the head chaetotaxy, the shape of accessory setae on nota, and the porotaxy remain unknown.

In *Gracilentulus* (at last in European species I know) head seta *psm* is present, accessory setae on nota are thin, seta - like (not very short, sensilla shaped as in the new genus), calyx is evidently larger, urosternite XI bears six setae, pores on urosternite V and VI are present and on urotergite XII absent (Szeptycki 1993).

The new genus shares some important characters with *Proacerella* (comp. Bernard 1975; Aldaba 1985). Accessory setae on nota, the general scheme of foretarsus and of squama genitalis of female are very similar in both of them. The number of setae on urosternite XI in *Proacerella* is 4 and the dorsal pore on urotergite XII present. They differ in the shape of foretarsal sensilla *t3* (which in *Proacerella* is relatively longer and more or less cylindrical) and in the proportion of setae on abdominal legs - in *Proacerella* the apical seta is about 2/3 length of the subapical one while in *Podolinella* the former is shorter than half length of the latter.

The foretarsus of *Podolinella* is nearly identical as in *Tuxenidia*. Both genera differ in the shape of sensilla *t3* (rather cylindrical in *Tuxenidia*), in the structure of striate band (in *Tuxenidia* striae are much stronger than in *Podolinella),* and in the

presence of only one seta on abdominal legs II and III in *Tuxenidia* (NOSEK and CVIJOVIĆ 1969; NOSEK 1973b; TUXEN and IMADATÉ 1974).

The lack of head seta *pps* seems to be a very rare character in *Acerentomoidea* (though head chaetotaxy in many genera remains unknown) - till now it was established only in *Maderentulus* TUXEN, 1963 (comp. TUXEN 1982, fig. 1), but this genus differs from *Podolinella* in many important characters as the normally developed labial palps, filiform foretarsal sensilla *t1*, and cylindrical *t3*.

Podolinella podolica sp. nov.

DESCRIPTION

Head setae short, additional and postpseudocular setae absent. 5+5 indistinct sensory setae present. Pseudoculus round or slightly elongated with short lever, PR 13-15. Filamento di sostegno long, with small, nearly smooth calyx, long posterior filament and bilobate posterior dilation, CF 4.4-5.4. Sensillae of maxillary palp equal, short and thin. Labial palp reduced with small, sausage - like sensilla, two setae and single remnant of "tuft". Inner margin of labium smooth.

Main setae on nota short, *P1a*, *P2a*, *P5* on meso- and metanotum as very small, thick sensillae; *P4a* on metanotum short, seta - shaped. Length ratio of *P1* : *P2* on mesonotum as 1 : 1.5-1.7. Pore *sl* present, *al* absent. Prosternum with no *A2*; *M2* on prosternum, and *A2* on meso- and metasternum and as very small, thick sensillae. Thoracal sterna with no pores.

Foretarsal sensilla *b'* present; *t1* fusiform and *t3* relatively large, leaf - like. Sensilla *a* of medium length, passing level of *t2*; *b* extremely long, passing base of claw; *c* subequal to *a*; *d* long, reaching level of *g*. Sensilla *a'* proximally to level of *t1*, thick; *b'* and *c'* thin. All sensillae parallel - sided. Length formula of foretarsal sensillae: $t1 = t3 < e = g = a' < b' = c' < a = c = f = t2 < d < b$. Seta $\beta 1$ subequal to $\delta 4$, both sensilla - shaped. Claw short, with no inner tooth; empodial appendage relatively long. BS 0.4-0.5, TR 3.0-3.3, EU about 0.3.

Urotergite I with no seta *P1a*; *P2a* of same shape as *P1a* on nota; *A5* as short, thin sensilla (as accessory setae on following tergites). Urotergite II - VI with no setae *P1a* and *P3a*; accessory setae as short, thin sensillae. Urotergite VII with 3 + 3 anterior setae (*A2*, *A4* and *A5*); setae *P1a* and *P3a* absent, *P2a* present; accessory setae as short, thin sensilla (as that on tergites II - VI). Pore *psl* present on urotergite VI - VII, but very variable (asymmetrical absence is common). Pore *al* dorsally to *A5* on urotergite II - VI, ventrally to it on VII. Urosternite II with no seta *P1a*. Accessory setae on urosternite I - VII as that on tergites, urosternite VII with no seta *Pc*. Lineation of sternites indistinct, as in fig. 14. Urosternite I - VI with no pores, on VII single pore situated asymmetrically or medially near hind margin of sternite.

Striate band on abdominal segment VIII well developed, normal. Urotergite and urosternite VIII with some indistinct grains in their lateral portion. Comb VIII with

Table 1. Body chaetotaxy of *Podolinella podolica* sp. nov.

	dorsal		ventral	
	composition of setae	formula	composition of setae	formula
Th. I	1, 2	4	A1, M1, 2 P1, 2, 3	2+4 / 6
Th. II	A2, 4, M P1, 1a, 2, 2a, 3, 4, 4a, 5	6 / 16	Ac, 2, 3, M P2, 3	5+2 / 4
Th. III	A2, 4, M P1, 1a, 2, 2a, 3, 4, 4a, 5	6 / 16	Ac, 2, 3, 4, M P2, 3	7+2 / 4
Abd. I	A1, 2, 5 P1, 2, 2a, 3, 4	6 / 10	Ac, 2 P1	3 / 2
Abd. II	A1, 2, 5 P1, 2, 2a, 3, 4, 4a, 5	6 / 14	Ac, 2 Pc, 2	3 / 3
Abd. III	A1, 2, 5 P1, 2, 2a, 3, 4, 4a, 5	6 / 14	Ac, 2 Pc, 1a, 2	3 / 5
Abd. IV-V	A1, 2, 5 P1, 2, 2a, 3, 4, 4a, 5	6 / 14	Ac, 2 P1, 1a, 2, 3	3 / 8
Abd. VI	A1, 2, 4, 5 P1, 2, 2a, 3, 4, 4a, 5	8 / 14	Ac, 2 P1, 1a, 2, 3	3 / 8
Abd. VII	A2, 4, 5 P1, 2, 2a, 3, 4, 4a, 5	6 / 14	Ac, 2 P1, 1a, 2, 3	3 / 8
Abd. VIII	A1, 4, 5 Mc, P1, 1a, 2, 2a, 3, 3a, 5	6 / 15	1, 2	4
Abd. IX-X	1, 1a, 2, 2a, 3, 4	12	1, 2	4
Abd. XI	3, 4	4		4
Abd. XII		9		6

straight hind margin, composed of 7-8 small, irregular teeth. Pore *psm* with no surrounding teeth, other pores lacking.

Seta *1a* on urotergite IX and X shorter than seta *1*, seta *2a* short. Urotergite XI with 2 + 2 setae (seta *1* absent). Hind margin of urotergite IX - XII smooth. Urosternite IX - XI with 2 + 2 setae. Segments IX - XI with no pores, urotergite XII with single median pore, urosternite XII with 1+1 anterolateral pores.

Squama genitalis of female with distinct distal prolongation of stylus and short acrostylus, males and younger instars unknown.

Body dimensions (in m): head 88-102, pseudoculus about 7, filamento di sostegno 17-21, mesonotal *P1* 7-8, mesonotal *P2* 11-12, foretarsus 53-54, claw 16-18, empodial appendage 5-6. Maximum body length (of not whole expanded specimen) about 0.8 mm.

Chaetal variability. In one specimen seta *M* on metanotum is asymmetrically lacking, in the other one seta *Mc* on urotergite VIII absent.

Holotype: female (nr 5039) Western Ukraine, Lysa Gora near Zolochiv, meadow on northern slope with *Carex cf. humilis*, *Scorzonera rosea*, *Helicotrichon desertorum* etc., plant debris and soil, 1 VI 1994, leg. A. SZEPTYCKI (kept in Institute of Systematics and Evolution of Animals, Polish Academy of Sciences, Kraków, Poland).

Paratypes: 2 females (nr 5041, 5042) together with holotype.

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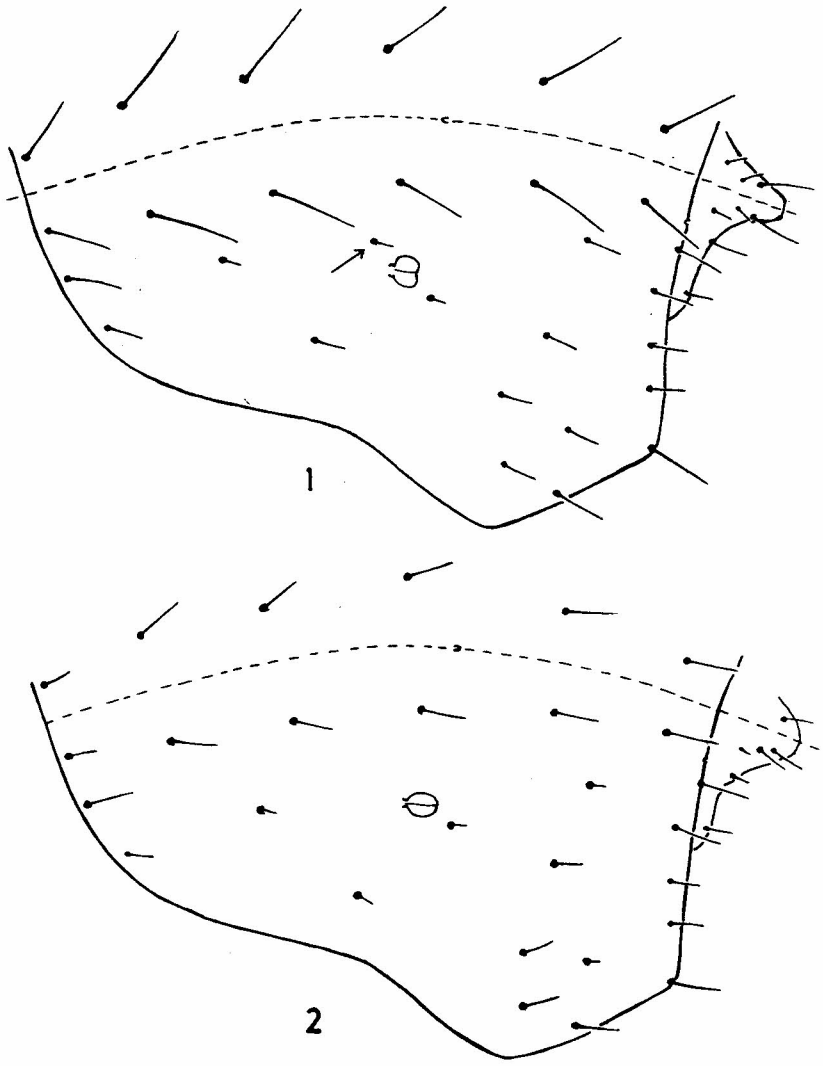
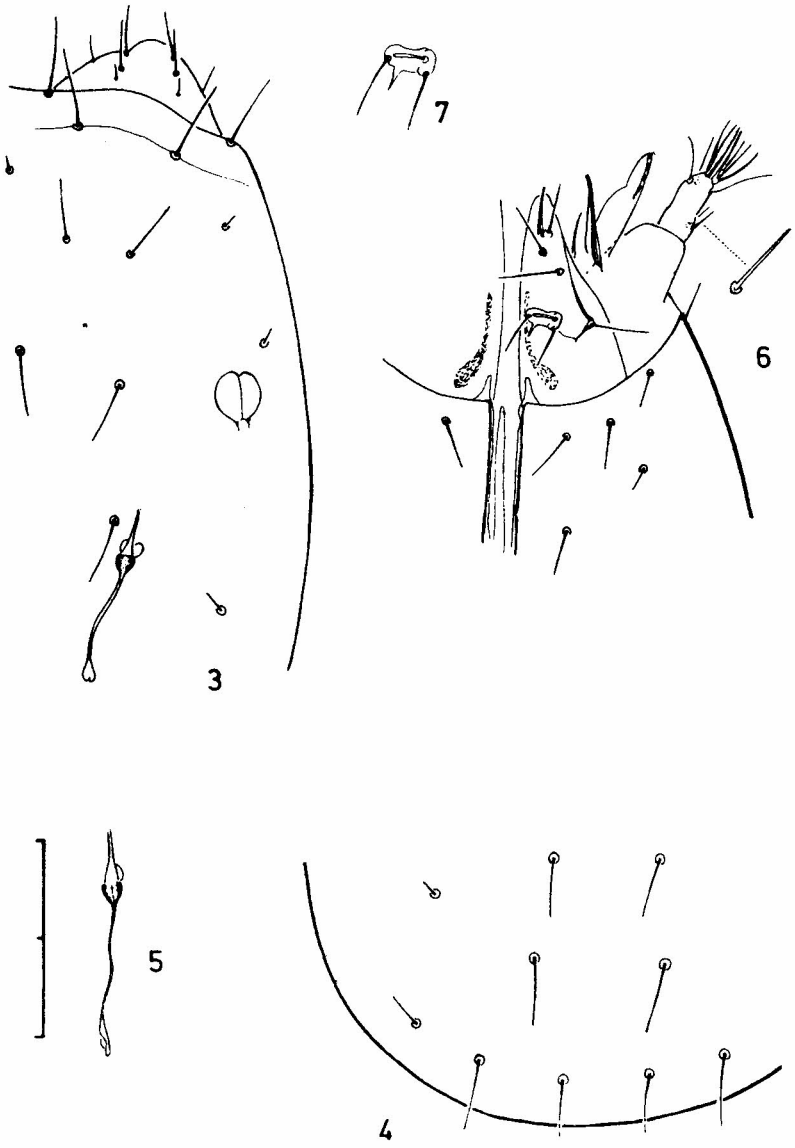
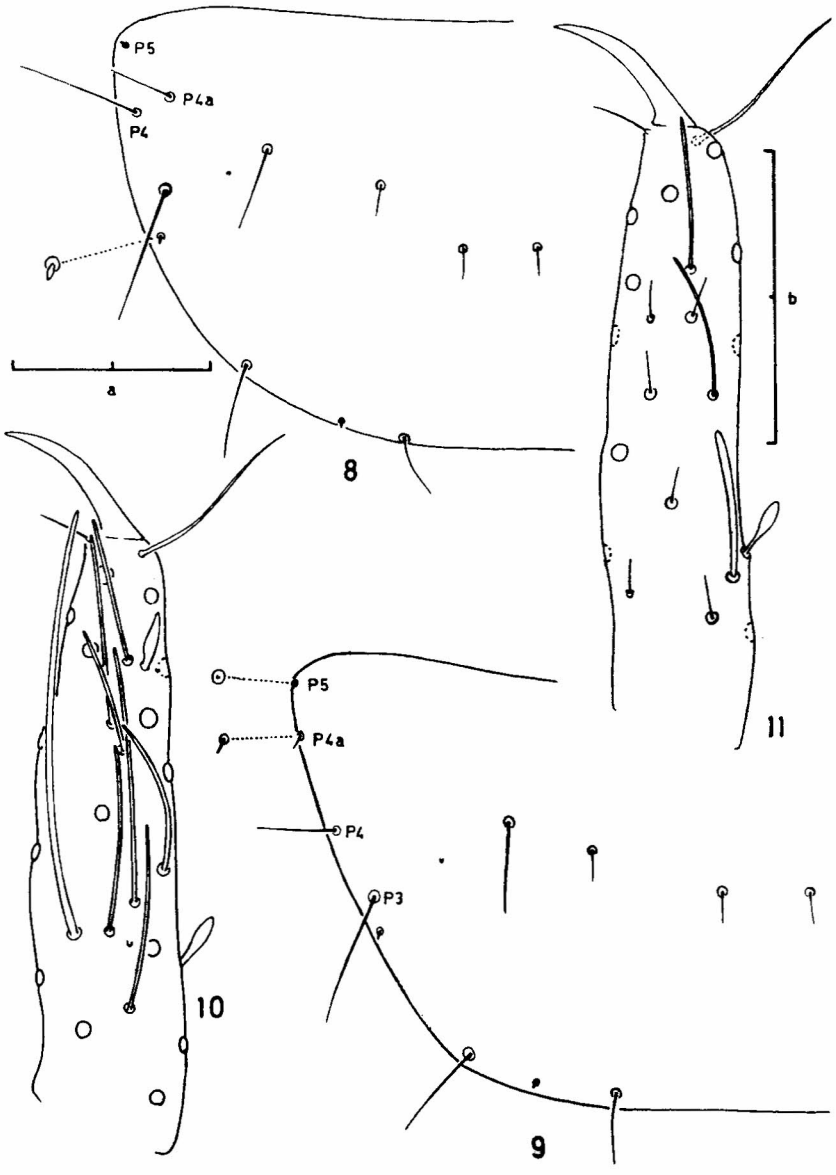


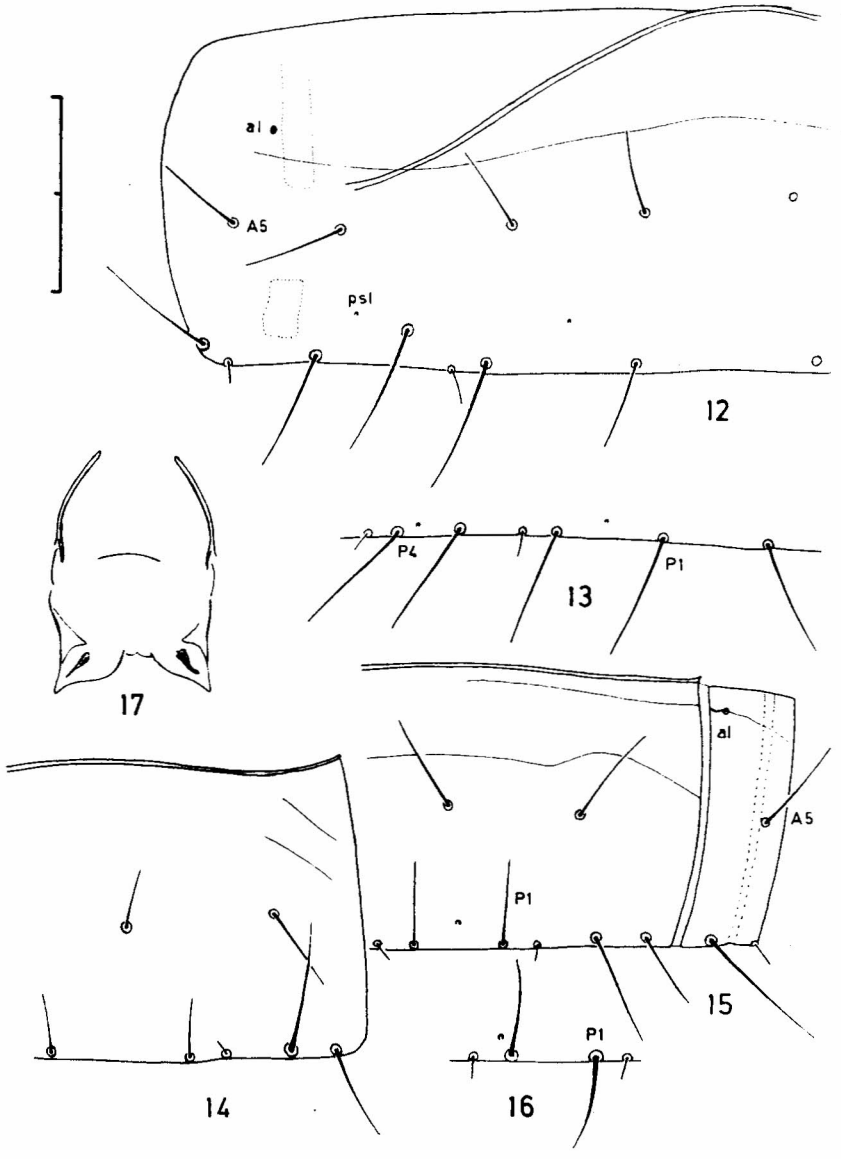
1-2. Scheme of head chaetotaxy in *Acerentulus* (1) and *Podolinella* (2) (arrow - seta *pps*)



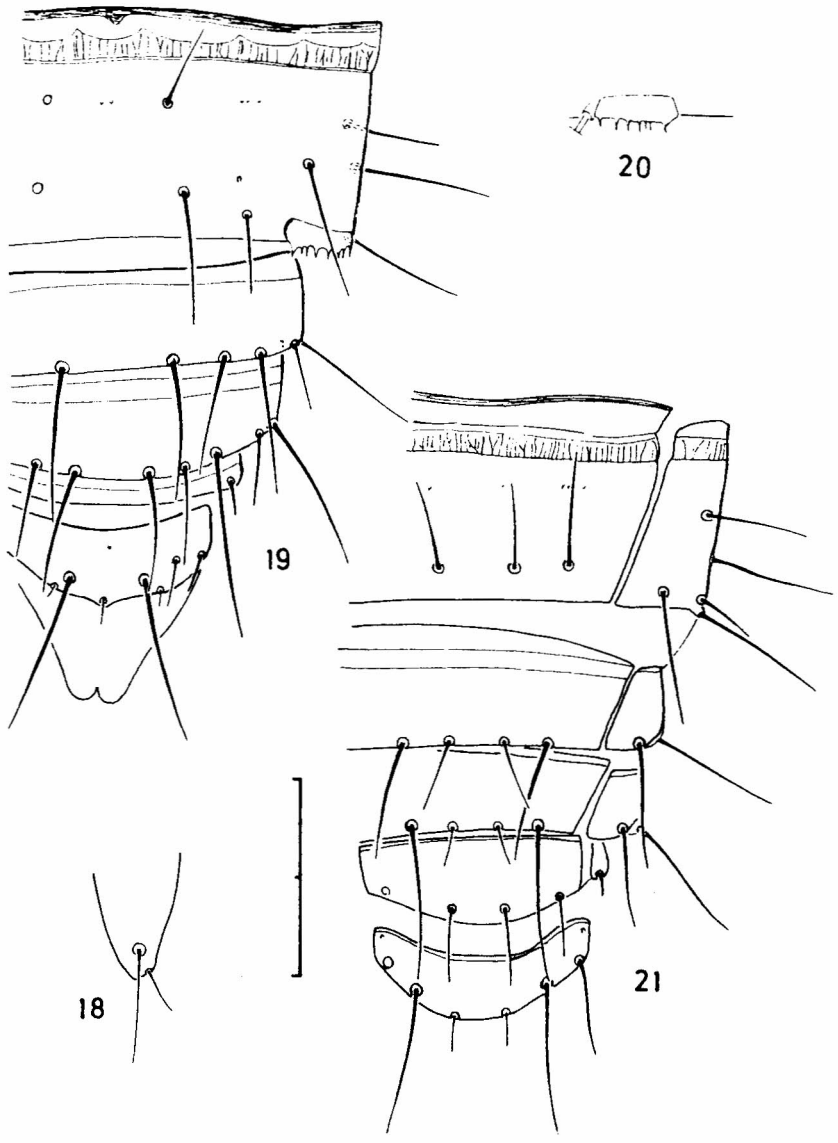
3-7. *Podolinella podolica* gen. nov., sp. nov. 3 - anterior part of head (paratype no. 5041), 4 - hind part of head (holotype), 5 - filamento di sostegno (ditto), 6 - mouthparts, ventral view (ditto), 7 - labial palp (ditto) (scale: 20 m)



8-11. *Podolinella podolica* gen. nov., sp. nov. 8 - mesonotum (holotype), 9 - metanotum (ditto), 10-11 - foretarsus, exterior view (10) and interior view (11) (paratype no. 5041) (8-9 - magnification a; 10-11 - magnification b; scale: 20 m)



12-17. *Podolinella podolica* gen. nov., sp. nov. 12 - urotergite VI (holotype), 13 - hind margin of urotergite VII (ditto), 14-15 - urosternite VI (14) and VII (15) (paratype no. 5041), 16 - medial part of hind margin of urosternite VII (paratype no. 5042) 17 - squama genitalis of female (holotype) (scale: 20 m)



18-21. *Podolinella podolica* gen. nov., sp. nov. 18 - abdominal leg II (holotype), 19 - urotergite VIII-XII (paratype no. 5041), 20 - comb VIII (paratype nr 5042), 21 - urosternite VIII-XI (paratype no. 5041) (scale: 20 m)