

Description of *Plectus cladinosus* sp. n. from the Ukraine
with notes on *P. longicaudatus* Bütschli, 1873
and *P. decens* Andrásy, 1985
(Nematoda, Araeolaimida: Plectidae)

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A new species of free-living soil nematode from ground lichens in a pine forest in the Shutsk National Park (Volynska Prov.) is described. *Plectus cladinosus* sp. n. is close to *P. turricaudatus* Truskova, 1976, but differs in the longer body, longer rectum and normal structure of tail terminus. Short redescriptions of *P. longicaudatus* Bütschli, 1873 and *P. decens* Andrásy, 1985, sp. dist. are given.

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Introduction

The investigation of the Ukrainian soil plectid fauna has been started only recently (Holovachov & Susulovsky, 1997). In the nematode collection of the State Museum of Natural History in L'viv, we found specimens of a new species of the *longicaudatus* group. In addition to the description of the new species, we redescribe *P. decens* and *P. longicaudatus* collected in Ukraine and Poland. All specimens were fixed in cold TAF, processed to pure glycerin and mounted on slides.

Plectus cladinosus sp. n.

(Figs 1-7)

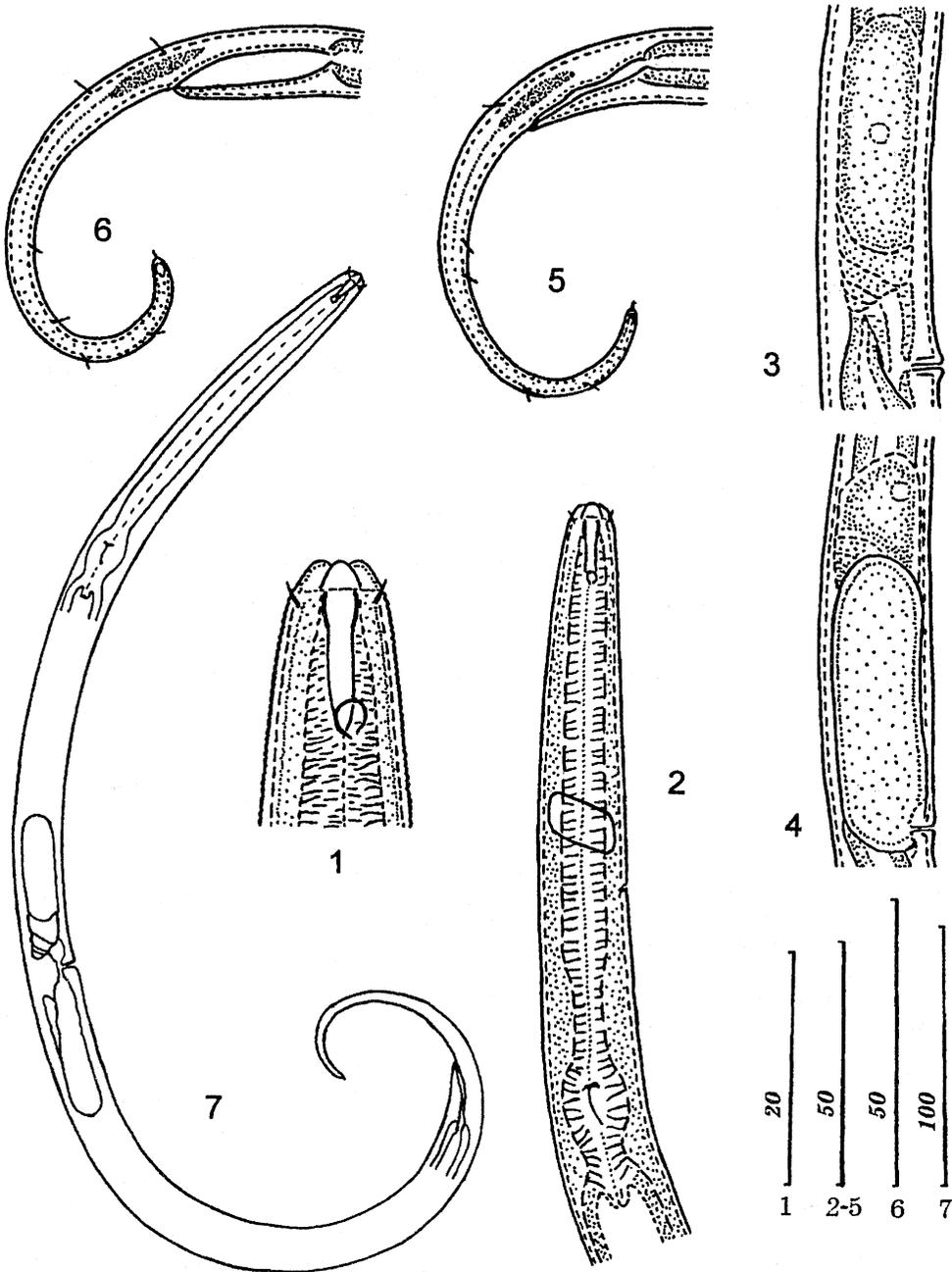
Holotype. ♀, Ukraine, Volynska Prov., Shutsk Distr., Shutsk National Natural Park, 5.VI.1997, leg. Holovachov, microscope slide No. 1757/1, State Museum of Natural History, L'viv.

Paratypes. 3 ♀, as holotype, slides No. 1757/2, 1757/3, 1757/4.

Description. Holotype: L = 0.67 mm; a = 33.5; b = 4.3; c = 7.7; c' = 10.7; V = 46.5%.

Paratypes (N = 3): L = 0.66-0.71 mm; a = 32.7-35.2; b = 4.1-4.6; c = 7.6-7.9; c' = 10.4-12; V = 44.9-47.5%.

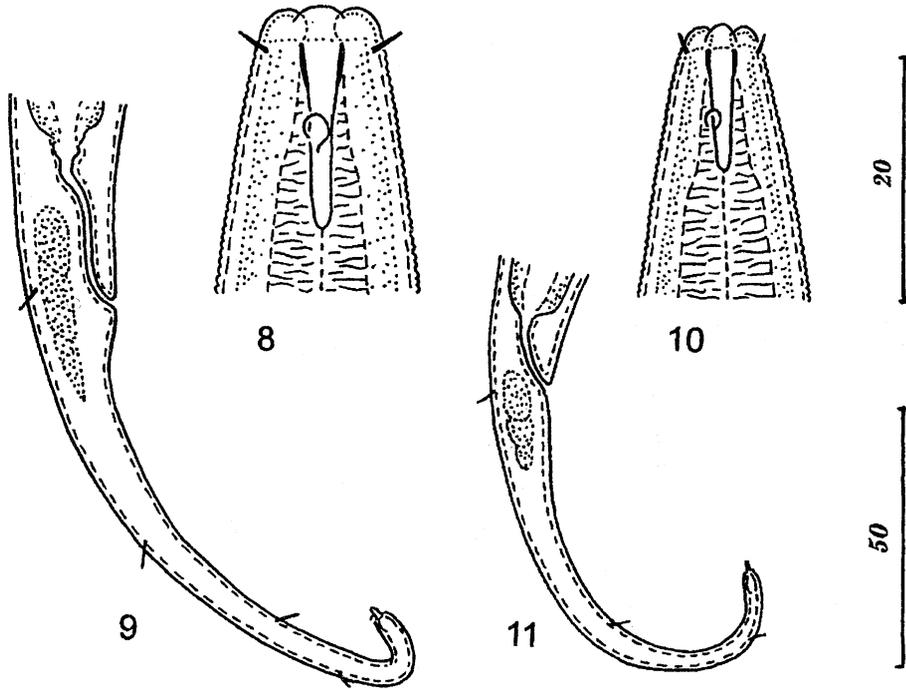
Body slender, ventrally arcuate, strongly narrowing in the rectum region. Cuticle thin, finely annulated. Lateral fields imperceptible. Body 18.9-21 µm wide in its middle region. Labial region not set off, 8.5-9.2 µm wide and 3.3-3.7 µm high; lips separated, of moderate height. Cephalic setae 2.5 µm long, thin, directed forward. Amphids 2.6-3 µm wide, almost 1/4 of corresponding body diameter, situated 13.9-15.1 µm behind anterior extremity, on the level of the basis of stoma. Stoma 13.5-14.6 µm long, 1.5-1.6 times labial region diameter. Protostome 1/3 of stoma length, distinct. Oesophagus 150-165 µm long; cardiac bulbus oval, weak. Cardia free, penetrate the intestine. Nerve ring 88 µm from anterior end of body (N = 55%). Excretory pore 87-98 µm from anterior end of body, in 56-59% of oesophagus length. Anal body width 7.8-8.7 µm. Rectum 27.7-31.9 µm, extremely long: 3.5-4.3 times anal body diameter. Gonads didelphic, amphilphic. Vulva slightly protruding. Va-



Figs 1-7. *Plectus cladinosus* sp. n. (1-3, 5, 7, holotype; 4, 6, paratypes). 1, anterior end (head of female, lateral view); 2, oesophagus; 3-4, vulva region and anterior gonad; 5-6, tail; 7, entire female. Scale bars are given in μm .

gina $1/3$ of corresponding body width. First ovary $34-54 \mu\text{m}$; oviduct $52-63 \mu\text{m}$; second ovary $36-47 \mu\text{m}$; oviduct $51-66 \mu\text{m}$. One egg: $51.1 \times 17.7 \mu\text{m}$. Tail $87.6-91.2 \mu\text{m}$ long, com-

pletely cylindrical, 10.4-12 times anal body diameter, arcuate ventrally. Caudal setae: 4-5. Caudal glands present. Tail terminus of normal structure. Male not found.



Figs 8-11. 8-9, *Plectus decens* Andrassy, 1985; 10-11, *Plectus longicaudatus* Bütschli, 1873. 8, 10, head of female, lateral view; 9, 11, tail. Scale bars are given in μm .

Table. Variability of stoma length, amphid location and labial region width in three populations of *Plectus*

Character		<i>P. longicaudatus</i> *, 28 ♀	<i>P. decens</i> **, 12 ♀	<i>P. decens</i> ***, 19 ♀
Stoma length	LimX (\bar{X}) (μm)	14.6-20.2 (17.2)	16.3-20.3 (19.1)	16.6-22.0 (18.6)
	σ	1.23	1.54	1.77
	m (\pm)	0.23	0.45	0.41
	Cv (%)	7.2	8.1	9.5
Amphid location	LimX (\bar{X}) (μm)	8.8-10.4 (9.4)	8.5-11.3 (9.8)	8.3-11.1 (10)
	σ	0.48	0.79	0.87
	m (\pm)	0.09	0.23	0.20
	Cv (%)	5.1	8.0	8.7
Labial region width	LimX (\bar{X}) (μm)	7.5-9.0 (8.2)	8.7-13.2 (10.9)	10.2-11.9 (11.2)
	σ	0.42	1.11	0.48
	m (\pm)	0.08	0.32	0.11
	Cv (%)	8.8	10.2	4.3

Note. * – Poland, Tatry, Zakopane, 1993; ** – Ukraine, Ivano-Frankivska Prov., Burkut vill., Velykyi Mokryn, sphagnum-sedge swamp, Aug. 1990; *** – Ukraine, Rovenska Prov., Belska Volya, lake Bile, sphagnum, June 1989.

Diagnosis. *Plectus cladinosus* sp. n. belongs to species of the *longicaudatus* group, is closely related to *P. turricaudatus* Truskova, 1976, but can be distinguished from it by the following characters: longer body (vs. 0.38-0.56 mm), longer rectum (vs. R/ABV = 3),

and normal structure of tail terminus (vs. tail with papilliform projection). From *P. decens* Andrassy, 1985, it differs in the lower location of amphid (vs. 9-10 μm from anterior extremity, on the level of the middle of stoma), shorter stoma (vs. 19-20 μm), com-

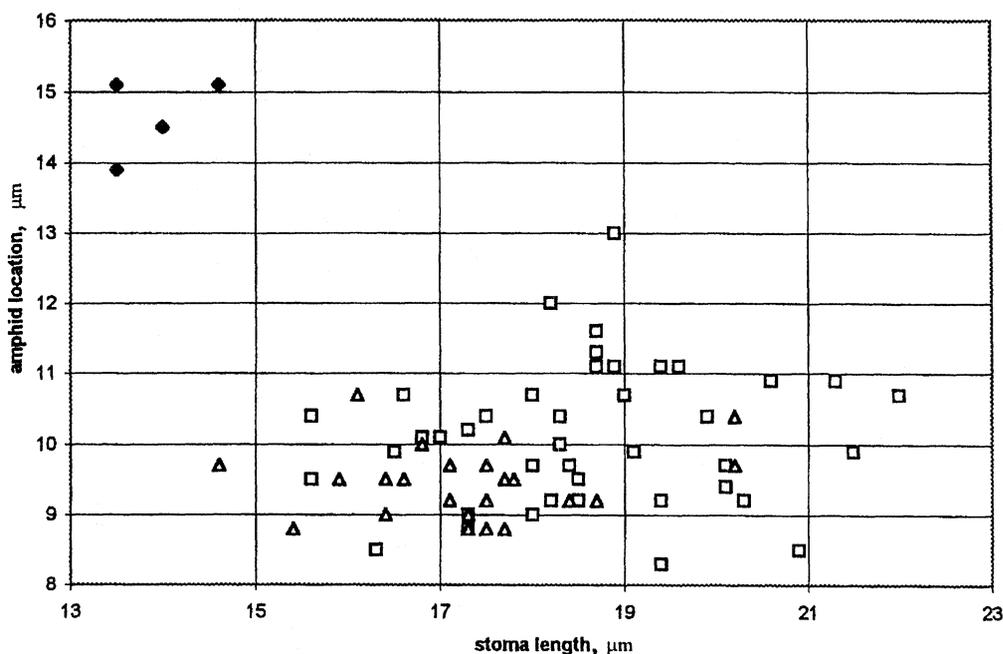


Fig. 12. Amphid location and stoma length in *P. cladinus* (◆), *P. decens* (□), and *P. longicaudatus* (△).

paratively longer tail (vs. $c' = 6.3-7.3$), and normal structure of tail terminus (vs. with thorn origination on spinneret). It can be easily distinguished from other species of the *longicaudatus* group by the low location of amphid and long rectum.

Habitat. Lichens (*Cladonia rangifera*, *Cladonia silvatica*, *Cetraria islandica*, *Peltigera canina*) on the ground in pine (*Pinus silvestris*) forest (*Pineta silvestris cladinosa*).

***Plectus decens* Andrassy, 1985, sp. dist.**
(Figs 8-9)

Material examined. The species was found in sphagnum mosses in birch and birch-alder-pine forests, in sphagnum bogs and sphagnum-sedge swamps in different parts of the Western Ukraine. Also we found this species in soil around roots of *Nardus stricta* on Blyznytsya Mountain (Carpathians) on alpine meadow.

Description. ♀ (N = 27): L = 0.58-0.90 (0.71) mm, a = 20.8-34.2 (25.0), b = 3.6-4.7 (4.1), c = 6.7-9.0 (7.8), $c' = 5.7-9.3$ (7.2), V = 43.5-52.8 (47.6)%.

Labial region not set off, 8.2-13.2 (10.7) µm wide, 3 µm high. Amphids 4 µm wide, situated 8.5-12 (10.1) µm behind anterior ex-

tremitry, on the level of the middle of the stoma. Stoma 16-22 (18.6) µm long, 1.5-2 times head diameter; cardial bulbous weak. Rectum 22-37 (31) µm long, 2-3 times as long as anal body diameter. Tail 71-110 (91) µm long. Tail terminus with unusual thorn origination on ventral side of spinneret.

Discussion. Zell (1993) brought *P. decens* Andrassy, 1985 into synonymy with *P. turricaudatus* Truskova, 1976 based on the fact that a part of his material as a result of fixation method had tails with drawn in ("kontrahiert") terminus in such a manner as in the latter species. In our material fixed in cold TAF, the tail terminus was not drawn in, but the unusual thorn-like structure described by Andrassy (1992) was seen rather clearly (another atypical tail terminus structure was described by De Ley & Coomans (1994) for *P. minimus* Cobb, 1893). The tail terminus structure in the species mentioned above needs additional study using SEM; taxonomic significance of this feature is unknown. In our opinion, the synonymy of *P. decens* with *P. turricaudatus* appears groundless. Morphometric investigation of Zell's extensive material and our own shows a sig-

nificant difference in the body length between the above mentioned species. In another case (*P. minimus* Cobb, 1893 and *P. geophilus* De Man, 1880), Zell himself considered such a difference in measurements as sufficient evidence that the two species are separate. Probably *P. decens* and *P. turricaudatus* also differ from each other in the stomatal length and amphid location in relation to stoma. According to measurements, populations examined by Zell seem to be conspecific with *P. decens*. But the redescription by Zell contains an inexactitude which complicates identification of this species. He stated in the text that the amphid is located 13-20 μm from anterior extremity, but in the key that it is not lower than 11.5 μm .

Variability of some measurements (stoma length, amphid location and labial region width) in two populations of *P. decens* and in one of *P. longicaudatus* is shown in the Table.

***Plectus longicaudatus* Bütschli, 1873**
(Figs 10-11)

Material examined. This widely distributed species was found in sphagnum mosses in pine (*Pinus mugo*) forest or birch (*Betula* sp.) grove, in sphagnum bogs, sphagnum-sedge and sedge swamps, in turf, on alpine meadow, in litter of beech forest in the Ukrainian Carpathians. The population described below was collected in Poland in Tatry Mountains.

Description. ♀ (N = 28): L = 0.53-0.60 (0.56) mm, a = 22.5-27.3 (25.1), b = 3.8-4.1 (4.0), c = 6.2-7.3 (6.6), c' = 7.3-9.2 (8.3), V = 45.7-48.7 (47)%.

Labial region not set off, 7.5-9.0 (8.2) μm wide, 3 μm high. Amphids 3 μm wide, situated 8.8-10.4 (9.4) μm behind anterior extremity, on the level of the middle of the stoma. Stoma 14.6-20.2 (17.2) μm long, 1.7-2 times head diameter. Rectum 16.5-18.9 (17.9) μm long, 1.6-1.9 times as long as anal body diameter. Tail 75.8-94.8 (85.8) μm long. Tail terminus of normal structure.

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