

# A new species of *Endonura* Cassagnau, 1979 from Bulgaria with remarks on *Endonura centaurea* (Cassagnau & Peja, 1979) (Collembola, Neanuridae)

Romuald J. POMORSKI  
Dariusz SKARŻYŃSKI

Zoological Institute, Wrocław University, Sienkiewicza 21, 50-335 Wrocław (Poland)  
onychus@biol.uni.wroc.pl

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## ABSTRACT

*Endonura urotuberculata* n. sp. from Bulgaria is described and illustrated. It is distinguished by the following combination of characters: lack of the eyes and seta 0 on the head, presence of seta E and free setae  $Di_{1,2}$  on the head, free setae on Th.I, free setae  $Di_3$  and  $De_2$  on Th.II,  $Di_3$ ,  $De_2$ ,  $De_3$  on Th.III,  $De_2$ ,  $De_3$  on Abd.I-II,  $De_3$  on Abd.III, arrangement of setae on tubercle  $Di$  on Abd.V (microchaeta, mesochaeta and macrochaeta placed in one row parallel to long axis of the body), presence of characteristic, cauliflower-like granules on tubercles of Abd.V-VI. The description of *Endonura centaurea* (Cassagnau & Peja, 1979) is supplemented. Syntypes of this species show distinct 2 + 2 ocelli in a typical arrangement, not large granules as suggested by authors in original description.

## KEY WORDS

Collembola,  
Neanuridae,  
*Endonura*,  
new species,  
taxonomy.

## RÉSUMÉ

*Une espèce nouvelle d'Endonura Cassagnau, 1979 de Bulgarie avec remarques sur Endonura centaurea (Cassagnau & Peja, 1979) (Collembola, Neanuridae).*  
*Endonura urotuberculata* n. sp. de Bulgarie est décrit et illustré. Il se distingue par la combinaison des caractéristiques suivantes : absence des yeux et soie 0 sur la tête, présence de soie E et de soies  $Di_1$  et  $De_2$  libres sur la tête, présence de soies libres sur Th.I, de soies  $Di_3$  et  $De_2$  libre sur Th.II,  $Di_3$ ,  $De_2$ ,  $De_3$  sur Th.III,  $De_2$ ,  $De_3$  sur Abd.I-II et  $De_3$  sur Abd.III, l'arrangement des soies sur le tubercule  $Di$  sur Abd.V (microchètes, mésochètes et macrochètes placées en une ligne parallèle à l'axe du corps), présence de granules caractéristiques en chou-fleur sur les tubercules de Abd.V-VI. La description de *Endonura centaurea* (Cassagnau & Peja, 1979) est complétée. Les syntypes de cette espèce montrent 2 + 2 cornéules distincts dans un arrangement typique, et non des gros granules, comme le suggérait la description originale.

## MOTS CLÉS

Collembola,  
Neanuridae,  
*Endonura*,  
nouvelle espèce,  
taxonomie.

INTRODUCTION

The genus *Endonura* Cassagnau, 1979 includes 26 species (Hopkin 1997). Most of them have European (especially Mediterranean) distribution, with only one Nearctic species, *Endonura tundricola* (Fjellberg, 1985). Members of this genus live mostly in mountain forests, usually under tree bark, rarely in humus or forest litter. Morphologically *Endonura* refers to *Cryptonura* Cassagnau, 1979 and *Deutonura* Cassagnau, 1979 from which it differs in fused tubercles Di on abdominal tergum V and separate tubercles Di, De on head, respectively. Phylogenetically *Endonura* undoubtedly belongs to the “*Neanura*” complex but its closer relationships and taxonomic position are unclear. This is caused by the lack of taxonomic studies concerning variability and diagnostic value of its morphological characters. Deharveng (1982) demonstrated that *Endonura* is a paraphyletic group, and consequently it should not be used as taxon. Though we agree with this conclusion, in the absence of a thorough revision we describe a new species in the genus *Endonura*.

SYSTEMATICS

*Endonura urotuberculata* n. sp.  
(Fig. 1A-F)

TYPE MATERIAL. — Holotype, adult male on slide. Paratypes, three adult females on slide (in authors collection).

TYPE LOCALITY. — Neighbourhood of Zvezdets, Strandzha, Bulgaria, under loose bark of tree on the gravel bed of Veleka river, 10.IX.1996, leg. R. J. Pomorski and D. Skarżyński.

ETYMOLOGY. — The name is derived from characteristic cauliflower-like granules on the last two abdominal terga.

DESCRIPTION

Body length 0.9-1.5 mm. Colour of the body yellowish white. Eyes absent. Mouth parts reduced. Mandibula with three teeth (Fig. 1C), maxilla styloform (Fig. 1D), labium as in Fig. 1E. Labral chaetotaxy typical for genus: 2, 4. Ant.4 with eight blunt sensillae. Abd.6 clearly visible from above. Body with slender, acuminate setae. Arrangement of dorsal tubercles and chaetotaxy as in Fig. 1A, B, F. Cephalic chaetotaxy (Fig. 1B): Cl: F, G, Af: A, B, C and free setae D, E, Oc: 3 setae, Di: 2 free setae, De: 2 setae, Dl + l: 6 setae, So: 9 setae. Postcephalic chaetotaxy as in Fig. 1A, F and Table 1. Ventral tube with 4 + 4 setae. Furca reduced to a small hump with five anterior setae and six to seven small setulae posteriorly. Remaining ventral chaetotaxy as in Table 1. Claws without teeth. Tibiotarsi I, II, III with 19, 19, 18 setae, respectively.

DISCUSSION

*Endonura urotuberculata* n. sp. belongs to a small group of *Endonura* species without eyes and without seta 0 on the head. This group includes *Endonura szepteyckii* (Weiner, 1973) and *Endonura*

TABLE 1. — Postcephalic chaetotaxy of *Endonura urotuberculata* n. sp.

	Di	De	DI	L	Ventral
<i>Th.I</i>	1 (free seta)	2 (free setae)	1 (free seta)	-	-
II	3 (Di <sub>3</sub> free seta)	3 (De <sub>2</sub> free seta)	4	3	-
III	3 (Di <sub>3</sub> free seta)	4 (De <sub>2</sub> , De <sub>3</sub> free setae)	4	3	-
<i>Abd.I</i>	2	4 (De <sub>2</sub> , De <sub>3</sub> free setae)	2	3	vt - 4
II	2	4 (De <sub>2</sub> , De <sub>3</sub> free setae)	2	3	Ve: 6, Ve <sub>1</sub> - present
III	2	4 (De <sub>3</sub> free seta)	2	3	Ve: 5, Fu: me-5, mi-6 (7)
IV	2	3	3	6	Ve: 7-8, VI: 4
V	[3 + 3]	7	-	-	Ag: 3, VI: 2
VI	7	-	-	-	Ve: 14, An: 2

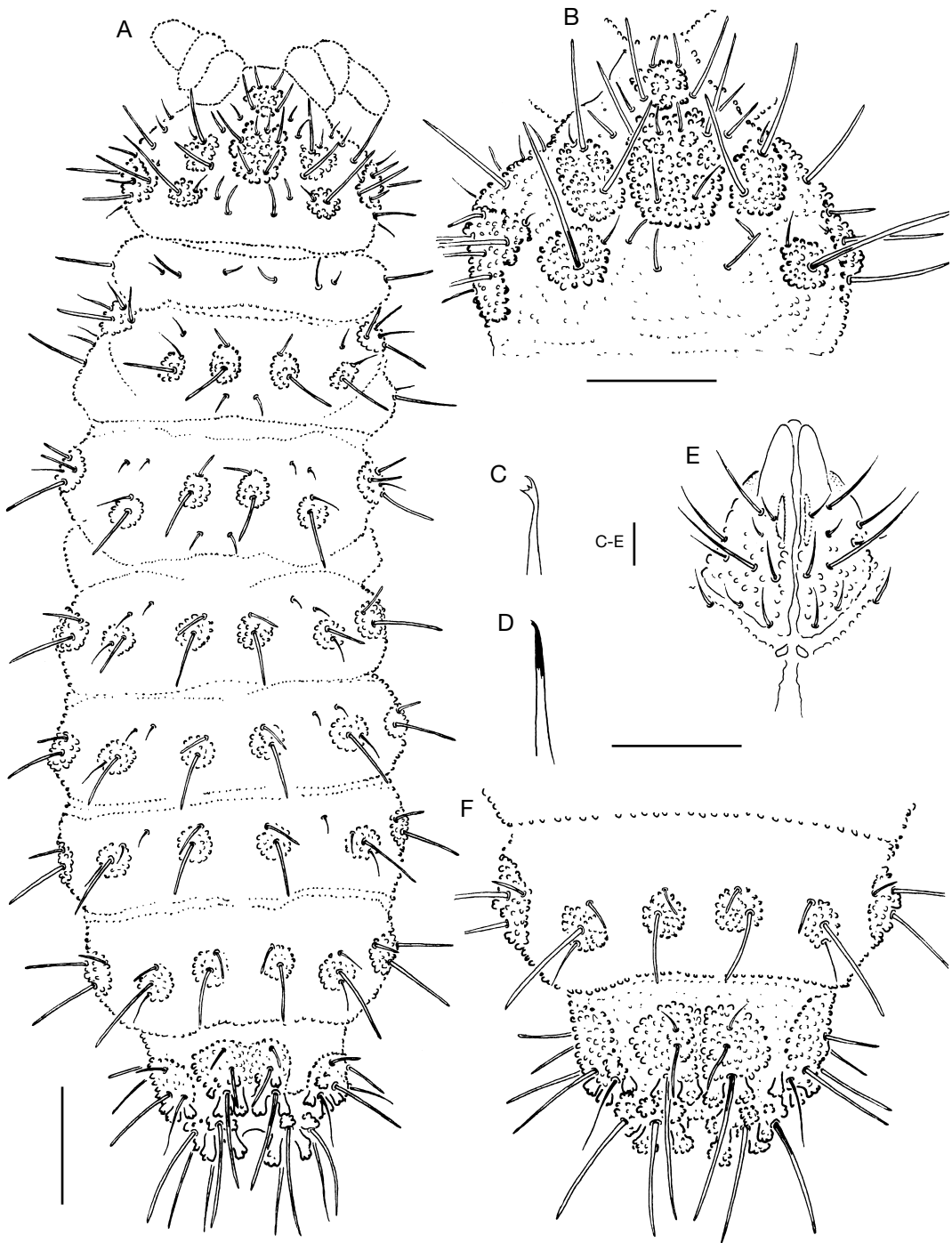


FIG. 1. — *Endonura urotuberculata* n. sp.; **A**, dorsal chaetotaxy; **B**, chaetotaxy of head; **C**, mandibula; **D**, maxilla; **E**, chaetotaxy of labium; **F**, chaetotaxy of abdominal terga IV-VI. Scale bars: A, B, F, 0.1 mm; C-E, 10  $\mu$ m.

*centaurea* (Cassagnau & Peja, 1979) (Deharveng 1982).

Because of unclear original description we have examined three syntypes of *E. centaurea* and ascertained that all of them have distinct 2 + 2 ocelli in a typical arrangement (magnification  $\times$  1250), not large granules as suggested by Cassagnau & Peja (1979). These characters are shared by the mentioned species and *Endonura pejai* Deharveng, 1980. Based on Deharveng's description of *E. pejai* (1980) and syntypes of *E. centaurea* we found only one considerable difference, the presence of characteristic, cauliflower-like granules on abdominal tubercles in *E. centaurea*. Besides, they differ in the number of setae on furca rudiment (*E. centaurea* – 4, *E. pejai* – 6), but diagnostic value of this character is not established, additionally both species were described on the base of subadult specimens. These facts have led us to a conclusion that the genus *Endonura* requires a thorough taxonomic study concerning variability and diagnostic value of morphological characters.

Consequently, *E. urotuberculata* n. sp. is closely related to *E. szeptyckii* from which it differs in the following characters: seta E on the head present, free setae Di<sub>1,2</sub> on the head, free setae on Th.I, free setae: Di<sub>3</sub> and De<sub>2</sub> on Th.II, Di<sub>3</sub>, De<sub>2</sub>, De<sub>3</sub> on Th.III, De<sub>2</sub>, De<sub>3</sub> on Abd.I-II, De<sub>3</sub> on Abd.III, arrangement of setae on tubercle Di on Abd.V, i.e. microchaeta, mesochaeta and macrochaeta

placed in one row parallel to the long axis of the Body (*E. szeptyckii*: two microchaetae situated perpendiculary to this axis, macrochaeta located behind them), presence of characteristic, cauliflower-like granules on tubercles of Abd.V-VI.

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