

A NEW SPECIES, *KRIVOLUTSKIELLA PENNATA* SP. N.,
FROM THE EASTERN MEDITERRANEAN
AND NEW DATA FOR *K. PUBESCENS* GORDEEVA, 1980
(COSMOCHTHONIIDAE, ACARINA, ORIBATIDA)

BY E. GORDEEVA¹, R. PENTTINEN², L. SUBIAS³ & A. PETROVA⁴

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ACARI
ORIBATIDA
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TAXONOMY
MEDITERRANEAN REGION
SEM

SUMMARY: A new species of oribatid mite, *Krivolutskiella pennata* Gordeeva, Penttinen & Petrova sp. n., is described. This species differs from the type species *Krivolutskiella pubescens* Gordeeva, 1980 by the form of all the notogastral setae. A brief description of the type species and diagnosis of this genus are presented. The work is mainly based on data obtained by Scanning Electron Microscope (SEM).

RÉSUMÉ : La nouvelle espèce *Krivolutskiella pennata* Gordeeva, Penttinen & Petrova sp. n. est décrite. Cette espèce diffère de l'espèce type *Krivolutskiella pubescens* Gordeeva, 1980 par la forme des soies du notagaster. Une brève description de l'espèce type et la diagnose pour le genre sont présentées. Ce travail est basé sur les données obtenues par examen en microscopie électronique à balayage.

INTRODUCTION

The genus *Krivolutskiella* with type species *K. pubescens* Gordeeva, 1980 has been described from the Canary Islands, western Mediterranean. Later this species has been reported from southeast Spain (KAHWASH *et al.*, 1989). At present it seems that distribution of this species is limited to the western part of Mediterranean.

The second species to the genus has been found now in the eastern part of Mediterranean. A new

species, *Krivolutskiella pennata* Gordeeva, Penttinen & Petrova sp. n. is described in this article. In addition, a brief description of the type species, *K. pubescens* Gordeeva, 1980 based on SEM investigation is given. Also, a few changes to the diagnosis of the genus *Krivolutskiella* Gordeeva, 1980 are established.

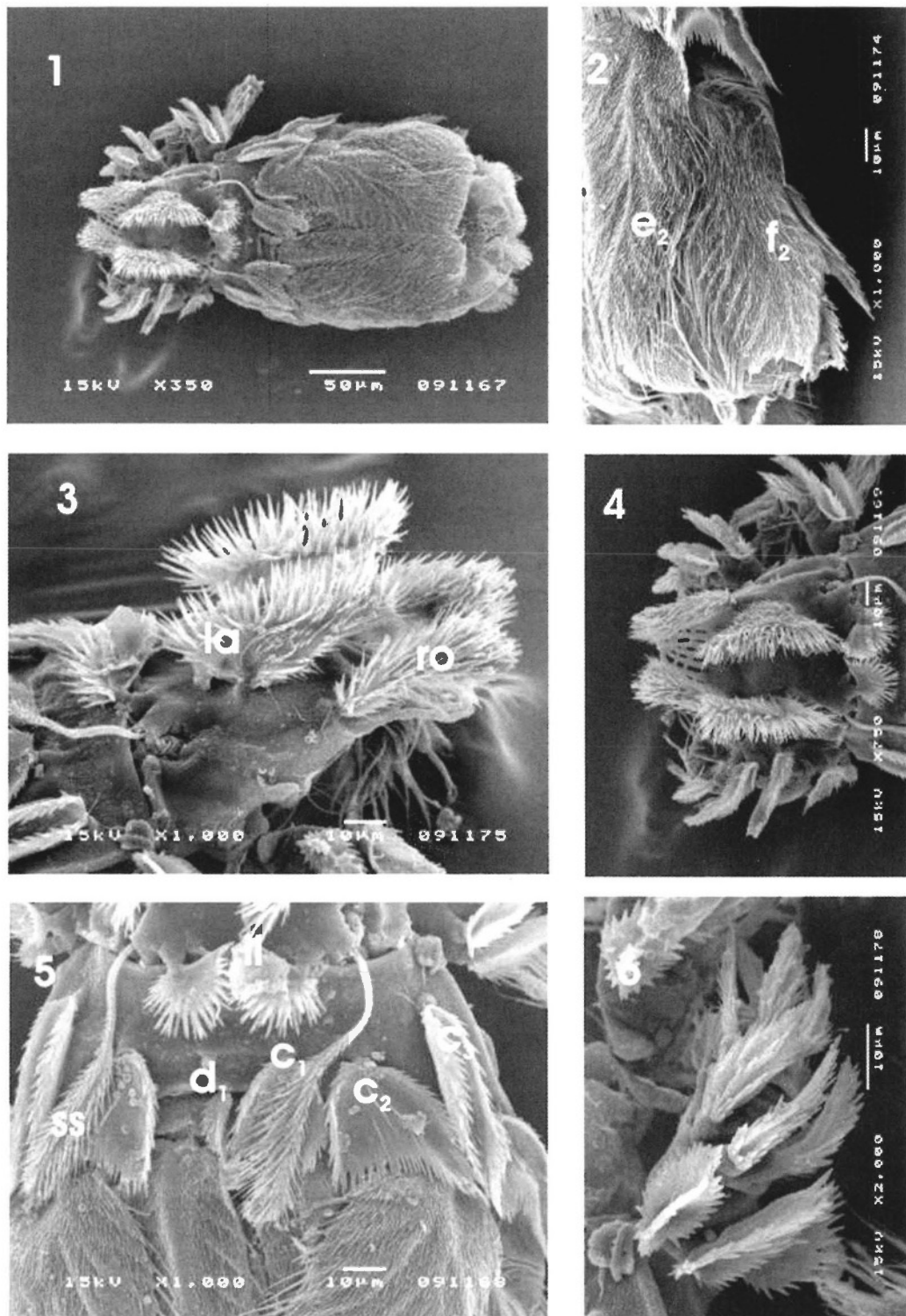
The chaetotaxic notations and other characters follow the terminology of Grandjean (1962). The illustrations have been made with the aid of a camera lucida attached to a compound microscope and the microphotographs with a SEM (JEOL JSM-5200).

1. Karadag Natural Reserve, Ukrainian National Academy of Science, Crimea.

2. Zoological Museum, University of Turku, Finland.

3. Zoological Department, Biology Faculty, Complutense University, Madrid, Spain.

4. Moscow State University, Department of Entomology, Faculty of Biology, Moscow Lomonosov State University, Russia.



FIGS. 1-6. *Krivolutskiella pubescens*. 1. — Dorsal view of body. 2. — Setae e_2 & f_2 . 3. — Lateral view of prodorsum. 4. — Dorsal view of prodorsum. 5. — Prodorsal setae (in & ss) and notogastral setae (c_1 - c_3 & d_1). 6. — Dorsal setae of leg II.

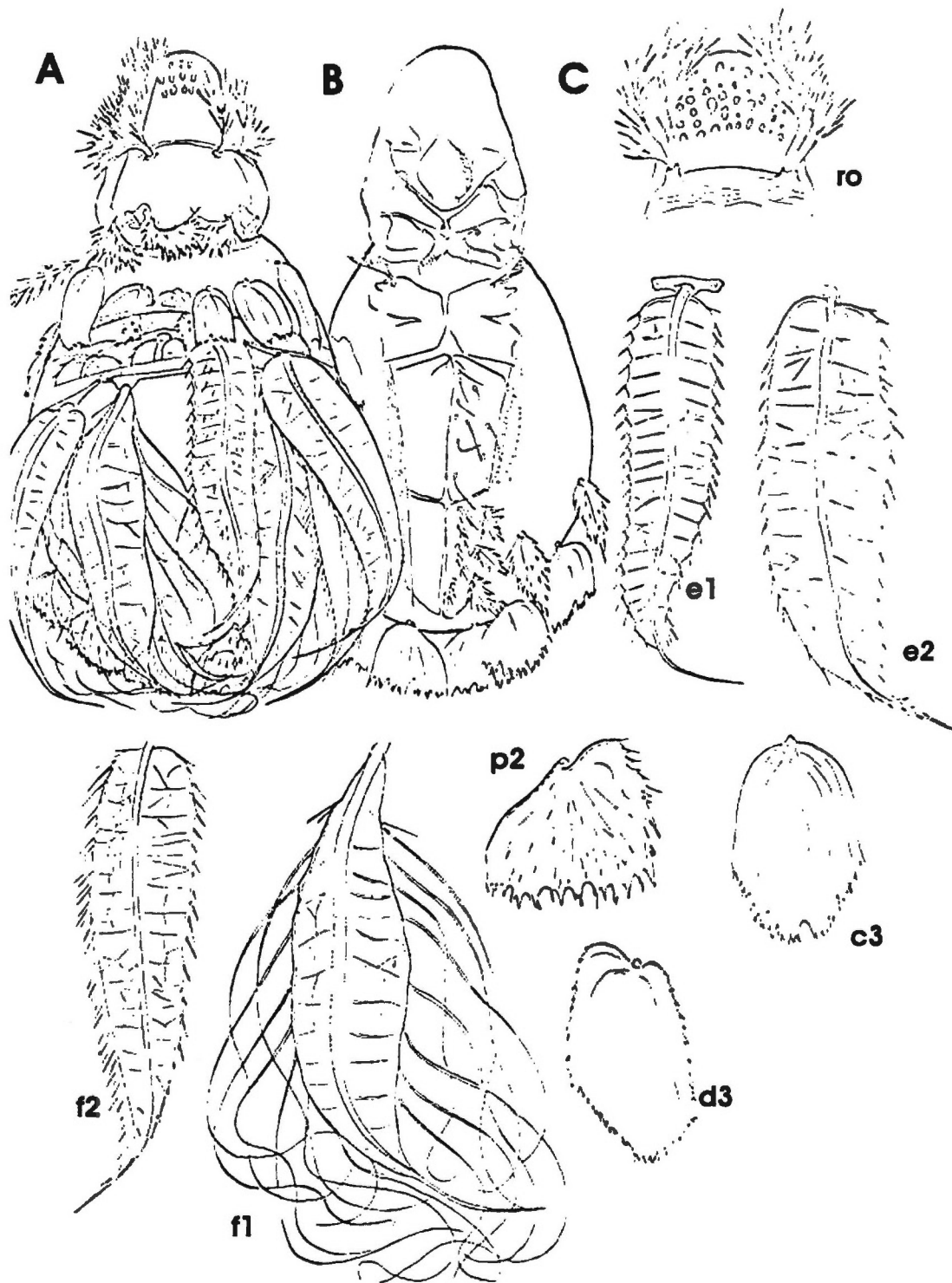


FIG. 7. *Krivolutskiella pennata* sp. n. A. — General view of dorsal body side. B. — General view of ventral body side. C. — Rostrum with rostral setae (ro). Notogastral setae; c3, d3, e1, e2, f1, f2 & p2.

DIAGNOSIS AND DESCRIPTION

Krivolutskiella Gordeeva, 1980

Type-species *Krivolutskiella pubescens*
Gordeeva, 1980

Diagnosis. Notogaster with three transversal furrows, forming four shields. All notogastral setae dilated; setae *c* wide, the smallest setae *d*₁ and *d*₂ leaf-like, setae *e* and *f* long and foliate, setae *h* & *p* short and wide; *h*₁ & *h*₂ and *p*₁ & *p*₂ slightly convex, setae *h*₃ and *p*₃ flat. Genital plate with 10 pairs of setae and both anal- and adanal plates with 4 pairs of setae. Formula of claws (leg I – leg IV): 2-3-3-3.

Krivolutskiella pubescens Gordeeva, 1980
(FIGS. 1-6)

Description. Measurement of holotype: 180 × 110 μm. Rostrum with small fenestrations, rounded. Rostral seta (*ro*), lamellar seta (*la*), and anterior exobothridial seta (*exa*) brush-like with long, sharp bristles. Interlamellar seta (*in*) fan-shaped with long, furcate secondary bristles. Posterior exobothridial seta (*exp*) slightly foliate with short bristles. Sensillus (*ss*) long with brush-like head.

Setae *c*₁, *c*₂ & *c*_p wider than long, asymmetrically bifurcate, *c*₃ elongate, sharp-pointed and with small, rough cilia dorsally. Lateral margins of setae *c* serrated with rough cilia.

Setae *d*₁ and *d*₂ short, leaf-like, laterally serrated with smooth stalks.

Setae *e* and *f* long, leaf-like with flexible apices, margins with long secondary setae. Setae *e*₁ & *f*₁ with threadlike secondary setae, which are especially long on internal margins. Dorsally densely covered by short cilia and reinforced by rough mid-rib and transverse ramifications.

Setae *h*₁, *h*₂ & *h*₃ leaf-like, with ribs and covered by rough cilia, *h*₃ > *h*₂ > *h*₁. Setae *p*₁ & *p*₂ fan-shaped, with slightly convex serrated blades, dorsally smooth, ventrally covered with ramose cilia.

Epimeral plates I-II medially separate, III – IV medially partly joined. Aggenital plate present, 10 pairs of genital setae, both anal- and adanal plates each with 4 pairs of densely ciliate setae.

Legs. Claws (I – IV): 2-3-3-3. The dorsal (*d*) and lateral (*l*) setae leaf-like, with mid-line covered by ciliae.

Types. Holotype (♀), Spain, Gran Canaria, 1969, V. D. GORDEEV leg., deposited in the Laboratory of Bioindication, Severtsov Institute, Evolutional Morphology and Ecology of Animals, Moscow, Russia. Paratype, one ex. with the same data, deposited in the Zoological Museum, University of Turku, Finland.

Other material studied. Spain, Isla Grosa (Murcia), (UTM: 30SYG08), soil under *Salsola oppositifolia*, February 1976, two exx., L. Subias leg., deposited in the Zoological Museum of the University of Turku.

Distribution. Palaearctic.

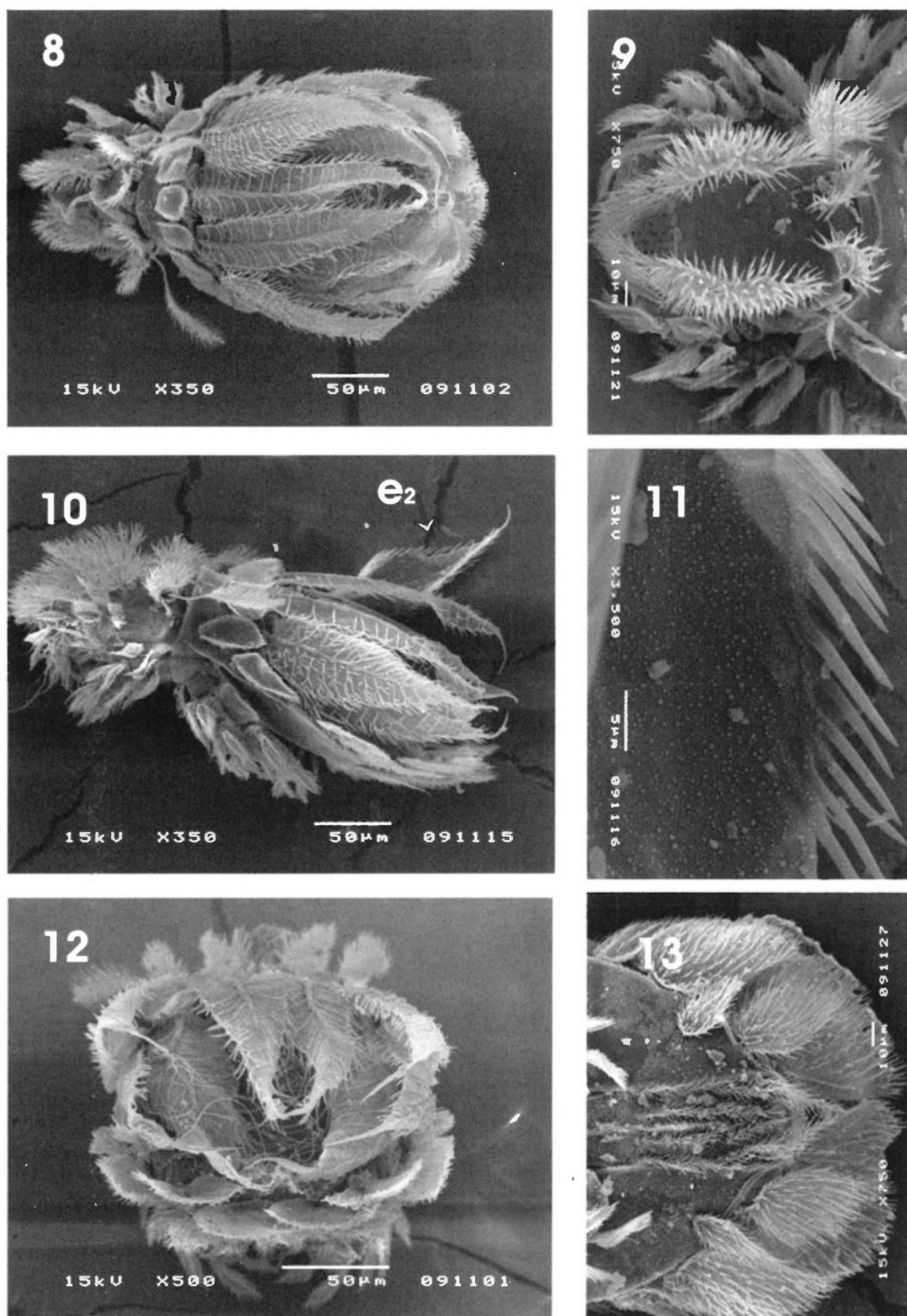
Krivolutskiella pennata Gordeeva,
Penttinen & Petrova sp. n.
(FIGS. 7-19)

Description. Measurements: 240 × 125 μm (holotype), 240-138 μm (paratype). Rostrum with longitudinal lines of small fenestrations, its apex round and curved down. Prodorsal setae wide, with short stalks. Dorsally *ro* and *la* with long, furcate cilia, laterally smooth. Seta *la* bifurcate and asymmetric, their anterior branches longer and stronger than posterior branches. *In* fan-shaped with long bi- or trifurcate secondary bristles on margins. Setae *exa* large, densely covered by long, furcate secondary bristles, *exp* short and slightly foliate. Sensillus (*ss*) wide from ½ of the length to the apex. Head of *ss* narrow, margins with long dense secondary bristles.

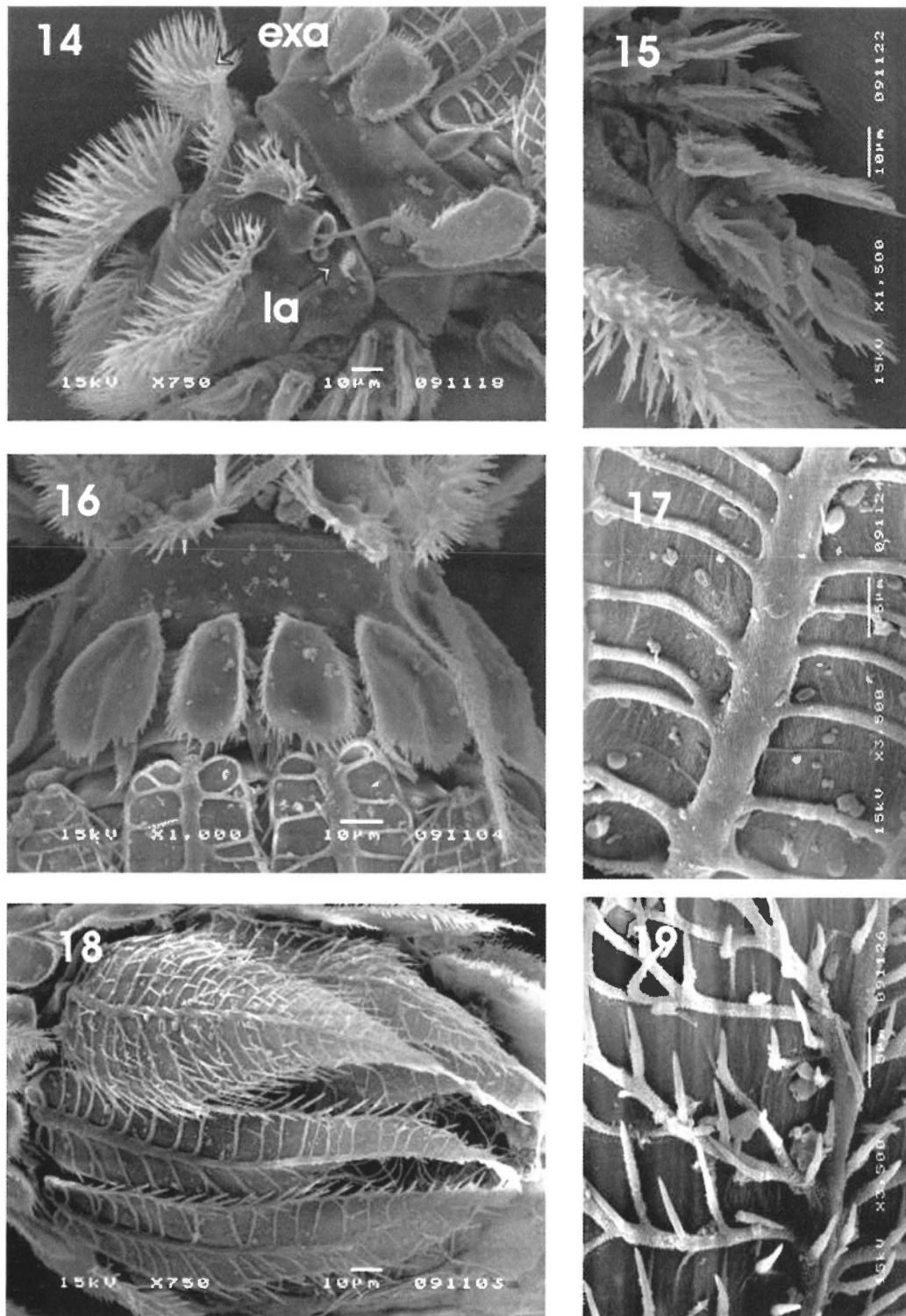
Notogaster separated into four unequal shields (*NA*, *NM*₁, *NM*₂ and *PY*). *NA* as long as *NM*₁ and *NM*₂ together. *NM*₁ = *NM*₂. *NA* + *NM*₁ + *NM*₂ = 1/3 *PY* (pygidium).

All the notogastral setae wide and cover almost the whole of the dorsal surface of the hysterosoma. Setae *c* round (not furcate), margins with two rows of rough cilia. Sizes of setae *c* increase from *c*₁ to *c*_p. Setae *d*₁ & *d*₂ short, leaf-like with smooth stalk and serrated edges, *d*₁-*d*₁' < *d*₁-*d*₂.

Two pairs of long, feather-like setae *e* and *f* on anterior borders of *NM*₂ and *PY* respectively. Rough, longitudinal midribs and thinner



FIGS. 8-13. *Krivolutskiella pennata* sp. n., 8. — Dorsal view of body. 9. — Dorsal view of prodorsum. Seta e_1 . 10. — Lateral view of body. 11. — Under side of seta e_2 . 12. — Posterior view of body. 13. — Anal region.



FIGS. 14-19. *Krivolutskiella pennata* sp. n. 14. — Dorsolateral view of prodorsum. 15. — Dorsal setae of legs I and II. 16. — Notogastral setae *c1-c3* and *d1 & d2*. 17. — Dorsal surface of seta *e1*. 18. — Setae *e* and *f*. 19. — Dorsal surface of seta *e2*.

ramifications on blades. Transverse and lateral branches of the setae e_1 & f_2 and especially e_2 covered by rough and spiny bristles. The lateral margins of seta e_1 parallel and apex sharply pointed. Seta e_2 wider than e_1 . Setae e_2 and f_2 taper sharply towards apices. Seta f_1 widest and longest, flexible, with very long flagelliform secondary ciliate.

Seta h_1 , h_2 , p_1 & p_2 comparatively short, wide, slightly convex and serrated. Dorsally smooth, laterally covered by bi- and triramose secondary bristles.

Epimeral plates I and II medially separated, III and IV medially partly joined. Formula of epimeral setae I – IV: 3-2-3-4, setae thin and pectinate. Aggenital plates present. Genital setae (10 pairs) simple, with thin cilia. Anal and adanal setae, both 4 pairs, penicillate with long cilia.

Legs. Claws (I – IV): 2-3-3-3. The dorsal (d) and lateral (l) setae leaf-like, with mid-line covered by secondary setae.

Diagnosis. New species *K. pennata* sp. n. differs from *K. pubescens* Gordeeva, 1980 by the form and structures of all the notogastral setae.

Distribution: Turkmenistan, Turkey and Greece (Rhodes).

Types. Holotype (♀), Turkmenistan, Duschak, from excrements in chambers of termite-nests (*Anacanthotermes ahngerianus* Juc.), September 1981, T. M. Zoltikova leg. Paratypes: two exx., Turkmenistan, Duschak, in the termite nest (*A. ahngerianus* Juc.), at a depth of 0-20, 20-40 cm, September 1981, T. M. Zoltikova leg., six exx., ♀, Turkmenistan, Duschak, in substrate of traps from inside termite-nests (*A. ahngerianus* Juc.) Schatov K. S. leg. Material deposited in the Department of Acarology, Institute of Zoology, National Academy of Science of Ukraine, Kiev.

Localities in Turkey and Greece. Turkey, Ismeler, grass, moss and lichen on slope 3 June 1995 R. NIEMI & E. GORDEEVA, one ex. on SEM stub., Ismeler, litter of *Arbutus unedo* on top of mount, 3.6.1995 R. NIEMI & E. GORDEEVA, one ex., Turkey Marmaris, Turunc, moss, lichen and grass on sea-side 5 m a.s.l., 18.5.1995 M. Yli-Pietilä leg., four exx., Greece, Rhodes, litter of *Pinus halepensis*, 1.6.1996 leg. R. NIEMI, one ex.

Distribution. Palaearctic.

DISCUSSION

This paper is the third article to provide new information about oribatids in the nests of termites (*Anacanthotermes ahngerianus* Juc.) in southwestern Turkmenistan (GORDEEVA *et al.*, 1996 & 1998). These studies indicate that the proportion of primitive oribatid species in the termite nests is significant. Some species — such as *Sphaerochthonius spectabilis* Gordeeva, Niemi & Petrova-Nikitina, 1996 — has been found only in termite nests, but other species can also live outside the nests. *Krivolutskiella pennata* sp. n. belongs to this group. We found it first in the material of termite nests and later in the soil and litter samples from southwestern Turkey and the island of Rhodes (Greece).

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