A NEW SPECIES OF THE GENUS ONCHODELLUS
(ACARI: MESOSTIGMATA: PACHYLAELAPIDAE) FROM CRIMEA, UKRAINE

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3 Figs 1–6

ABSTRACT: A new species, Onchodellus euparadactylier sp. n., collected from the sea debris on the shore of the Black Sea in Crimea is described.

KEY WORDS: Onchodellus, Pachyraelapidae, new species, seashore, Opuk, Crimea

INTRODUCTION

The genus Onchodellus Berlese, 1904 is by far the largest genus of the family Pachyraelapidae, with up to 80 species distributed mainly in Europe, Asia and Africa (Mašán and Halliday, in press). In Ukraine six species of this genus were reported by Koroleva (1977), all classified in the genus Pachylaelaps Berlese, 1888: P. brachyperitrematus Koroleva, 1977; P. hispani Berlese, 1908; P. karawaiwi Berlese, 1920; P. nidicolens Koroleva, 1977; P. regularis Berlese, 1920; and P. siculo Berlese, 1892. Now we know, based on a revision work of Mašán (2007), that P. brachyperitrematus is a synonym of O. islandicus (Sellnick, 1969), P. hispani and P. regularis sensu Koroleva (1977) are misidentified species, viz. O. anovillosus (Berlese, 1920) and O. substrictus Mašán, 2007, respectively. Here we describe a new species of the genus Onchodellus collected from sea debris on the shore of Black Sea of the Opuk Nature Reserve (Crimea, Ukraine).

MATERIALS AND METHODS

Mites were collected from the sea debris from the supralittoral zone of the Black Sea, on a sandy beach in the Opuk Nature Reserve (Crimea, Ukraine) using Tullgren funnels and mounted in Hoyer’s medium. The terminology of the leg chaetotaxy as well as dorsal and ventral chaetotactic pattern used in this paper follows Evans (1963) and Lindquist and Evans (1965) as applied by Moraza and Peña (2005). The idiosomal adenotaxy and podotaxy follows Johnston and Moraza (1991). All measurements are given in micrometers (µm).

SYSTEMATICS

Family Pachyraelapidae Berlese, 1913
Genus Onchodellus Berlese, 1904
Onchodellus euparadactylifer sp. n.

Figs 1–6

Description. Female. Dorsal idiosoma (Fig. 1). Dorsal shield 590–695 long and 360–425 wide, oblong (length/width 1.6–1.74), suboval, with truncate anterior margin and delicate reticulation on surface; line-reticulate pattern regularly scale-like posteromedially, and poorly developed or absent on submedial (between setae j5–j5–j6–j1) and posteromarginal (between setae J4–J5) surfaces. Dorsal shield with 30 pairs of setae and 21 pairs of pore-like structures; setae smooth, needle-like and relatively robust. Most of dorsal shield setae generally subequal in size, 45–75 in length (except j1 27–35, j5 40–52, z1 17–22, and J5 37–50). Setae J4 relatively long, 60–75 in length, slightly differing from J5 (J4/J5 1.24–1.78, but usually 1.4–1.6); length of other dorsocentral setae on opisthonotum as follows: J1 47–67, J2 55–72, and J3 55–75. Distances of some dorsal shield setae as follows: j5–j5 73–85, j5–z5 37–50, J1–J2 44–55, J2–J2 125–155, J2–J3 78–106, J3–J4 88–106. Marginal rows of r- and R-setae on dorso-lateral soft integument with six pairs of setae; length of marginal setae slightly increasing posteriorly (r6 26–35, R1 and R3 30–35, R4 33–40, R5 38–55, R6 50–60). Gland pores gdS4 slightly hypertrophied, with slot-like opening; gland pores gdZ1 not modified, with normal circular opening and paraxial position to alignment Z1–Z2.

Ventral idiosoma (Fig. 2). Sternal shield 210–242 long, with distinct reticulate pattern on surface and four pairs of sternal setae; the setae slightly differing in length (st1 50–70, st2 45–60, st3 40–55, st4 45–65). Genitiventral shield tongue-shaped, longer than wide (length 211–242, width 181–201, length/width 1.13–1.27), regularly rounded posteriorly, undistinctly punctate medially, bearing weak line-reticulate pattern and two pairs of setae (st5, Jv1). Sternal and genitiventral shields subequal in length (SS length/GVS length 0.93–1.05). Anal shield subtriangular, 66–86 long and 91–109 wide (length/width 0.68–0.83), most likely smooth, sometimes with transverse sculptural line and punctuation in its anteriormost part; three
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circumanal setae on the shield subequal in length, 27–35 long. *Peritrematal shields normally developed*, weakly punctate on parapodal surfaces; *anterior section of peritremes slightly elongated and with tip reaching the marginal dorsal surface between setae j2 and z1*. A pair of small, elongated and well-sclerotized metapodal shields present. Opisthogastic soft integument with eight pairs of ventral setae (*Jv2−Jv5, Zv2−Zv5*); all ventrally inserted setae similar to those on dorsal idiosoma, but less robust.

Legs. Tarsus II with one spur-like distal seta *pl1* (Fig. 3). Pretarsal paradactyls II–IV *well-developed*, elongated, curved, apically pointed and projecting well beyond the claws (paradactyl approximately 2–2.5 times longer than adjacent claw). Leg chaetotaxy: leg I — coxa 0–0/2–0, trochanter 1–3/1–1, femur 2–5/4–2, genu 2–3/2 2/1–2, tibia 2–3/2 2/1–2; leg II — coxa 0–0/2–0, trochanter 1–3/0–1, femur 2–5/3–1, genu 2–3/1 2/1–2, tibia 2–2/1 2/1–2; leg III — coxa 0–0/2–0, trochanter 1–3/0–1, femur 1–3/1–1, genu 1–2/1 2/0–1, tibia 1–1/1 2/1–1; leg IV — coxa 0–0/1–0, trochanter 1–3/0–1, femur 1–3/1–1, genu 1–2/1 2/0–1, tibia 1–1/1 2/1–1. Tarsi II–IV with 18 setae.

Sperm *access system* (Fig. 4). Spermathecal tubes long, *uniformly thin, very weakly sclerotized*, and difficult to detect in most of specimens examined.

Figs 1–2. *Onchodellus euparadactylifer* sp. n., female, with notation of setae and pore-like structures: 1 — dorsal idiosoma, 2 — ventral idiosoma.
Gnathosomal structures (Figs 5–6). Epistome (Fig. 5) widened basally, serrate on lateral margins, with wide central projection distally; this projection with short neck and well developed denticles on anterior margin. Corniculi robust and horn-like. Cheliceral digits relatively long and slender; movable digit with two subdistal teeth, and fixed digit with three subdistal teeth and short pilus dentilis (Fig. 6). Palp apotele 3-tined.

Type material. Female holotype (slide No. SM080712): UKRAINE, Crimea, Opuk Nature Reserve, sandy beach, sea debris mainly including Zostera sp. (Zosteraceae), supralittoral zone of Black Sea, 45°02’N, 36°14’E, July 8, 2012 (coll. S.I. Maslov); paratypes: seven females, with the same data as holotype.

Type depositories. The holotype and three paratypes are deposited in the collection of the Nikita Botanical Gardens — National Scientific Centre, Yalta, Ukraine; four other paratypes at the Institute of Zoology, Slovak Academy of Sciences, Bratislava, Slovakia.

Etymology. The specific name is derived from the Greek words „eu-“ (true, good), „paradaktylos“ (paradactyl, a specific term for paired structure developed on pretarsus) and „ferein“ (bear), referring to the excessively developed paradactyls on tarsi II–IV. In known species of the genus Onchodellus, these pretarsal structures are minute, barely discernible and shorter than claws.

Differential diagnosis. Disregarding the specific metric data and measurements given for Onchodellus euparadactylifer sp. n., the new species may be distinguished from the other species of Onchodellus by the following: 1) paradactyls on pretarsi II–IV well elongated and curved, 2) the vertex (anterior margin of dorsal shield) is widely truncated, 3) the anterior tips of the peritremes distinctly overpassing the bases of the setae z1, and 4) the dorsal shield setae robust.

When using the key to 33 European species of Onchodellus females by Mašán (2007), new species can be keyed out together with Onchodellus anovillosus, O. hispani, O. montivagus Mašán, 2007, O. siculus, and O. squamosus (Koroleva 1977), by the following: 1) dorsal setae J4 more than 50 µm in length (entry 42); 2) setae J5 less reduced in length in comparison with J4, longer than 37 µm and only 1.1–1.7 times shorter than setae J4 (entries 44, 46, 56); and 3) lateral and opisthogastric soft integument with 14–15 pairs of setae (entry 52). Further separation of the above mentioned species in the key is derived from the length of peritremes (entries 57, 58). There is a group of four species having the anterior sections of peritremes shorter and with their tips reaching between the insertions of the dorsal setae z1 and z2, while O. siculus has peritremes slightly elongated and with their anterior tips between setae j1 and j2. Considering this character state, O. euparadactylifer sp. n. can be considered as an intermediate species with anterior tips of peritremes between setae j2 and z1.

Notes. In the new species, we have found an unusual and remarkable form of the pretarsal paradactyls on legs II–IV (these structures are strongly elongated, apically pointed and with their tips projecting well beyond the claws; Fig. 3). This modification has not been recorded neither in the genus Onchodellus or other pachylaelapid genera up to now, and it may be a morphological adaptation to life in semiaquatic coastal environment of supralittoral zone, enabling movement in very humid substrates. Functionally similar adaptations occur in some strongly hygrophilous Blattisociidae, namely Cheiroseius Berlese 1916, Cheiroseiulus Evans et Baker, 1991 and Platyseius Berlese, 1916, in which the paired paradactyls (together with some elongated structures of the pulvillus) have a form of large expanded and flattened projections (Lindquist et al. 2009). All enlarged and acutely pointed structures which can be found on the apical parts of legs II–IV are considered to be adaptations for moving.
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