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Zercon myriasetosus sp. n., an extraordinary species of the family Zerconidae (Acari: Mesostigmata)

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Abstract. *Zercon myriasetosus* sp. n., a new neotrichous species of the genus *Zercon* is described and illustrated on the basis of material collected from Plitvice National Park, Croatia.

Key words: taxonomy, Acari, Mesostigmata, Zerconidae, *Zercon*, new species, Croatia

INTRODUCTION

Zerconid mites are constituting an important component of the soil fauna as predators feeding mainly on nematodes, occuring in moss, leaf-litter and other organic detritus of the forest floor. The group is distributed on the Northern Hemisphere from the boreal zone to the subtropical forests, however showing the highest species-richness in the temperate climate zone. The family Zerconidae is represented by over 37 genera and subgenera (Lindquist et al. 2009) from which the genus *Zercon* C. L. Koch, 1836 is the most speciose.

Dorsal chaetotaxy of *Zercon* species shows a great variety, but most of the species have the following chaetotactic formula: 22 pairs of setae on the podonotal shield (j1-6, z2-6, s1-6, r1-5), 21 pairs of opisthonotal setae (J1-5, Z1-5, S1-5, R1-6) (Lindquist & Moraza 1998). On the one hand, however, opisthonotal setae s1 are frequently lacking, while several species are known with the absence of different opisthonotal setae (principally setae from the S-series). On the other hand, the presence of additional setae is a known phenomena in some species as well. Currently six *Zercon* species are

identified as neotrichous – *Zercon aniellae* Solomon, 1984, *Zercon armiger* Mašán & Fenďa, 2004, *Zercon bisetosus* Balan, 1995, *Zercon echinatus* Schweizer, 1922, *Zercon sylvii* Solomon, 1982 and *Zercon trabzonensis* Urhan, 1997 –, with various number of supplementary setae, but 9-10 at most. Examination of a material collected in Croatia provided another new neotrichous species with extraordinarly high number of posterocentral opisthonotal setae, which is described below.

MATERIAL AND METHODS

The specimen investigated was extracted from the samples using Berlese-funnels, was cleared with lactic acid and mounted in glycerine. Preparation was examined using a light microscope, drawings were made with the aid of a drawing tube. The holotype is stored in 70% ethanol and deposited in the Collections of Soil Zoology of the Hungarian Natural History Museum. The terminology of setae follows Lindquist & Evans (1965), with modifications for the caudal region as given by Lindquist & Moraza (1998). The system of notation for dermal glands and lyrifissures is based on Johnston & Moraza (1991). Measurements are given as mean, in micrometers.

TAXONOMY

Zercon myriasetosus sp. n.

(figs 1-2)

Type material

Holotype: male, E-2050: Croatia, Plitvice National Park, from leaf-litter, 14.08.2006., leg. Kontschán, J., Garai, Á.

Etymology

The name of the new species "*myriasetosus*" refers to the high number of supplementary setae.

Diagnosis

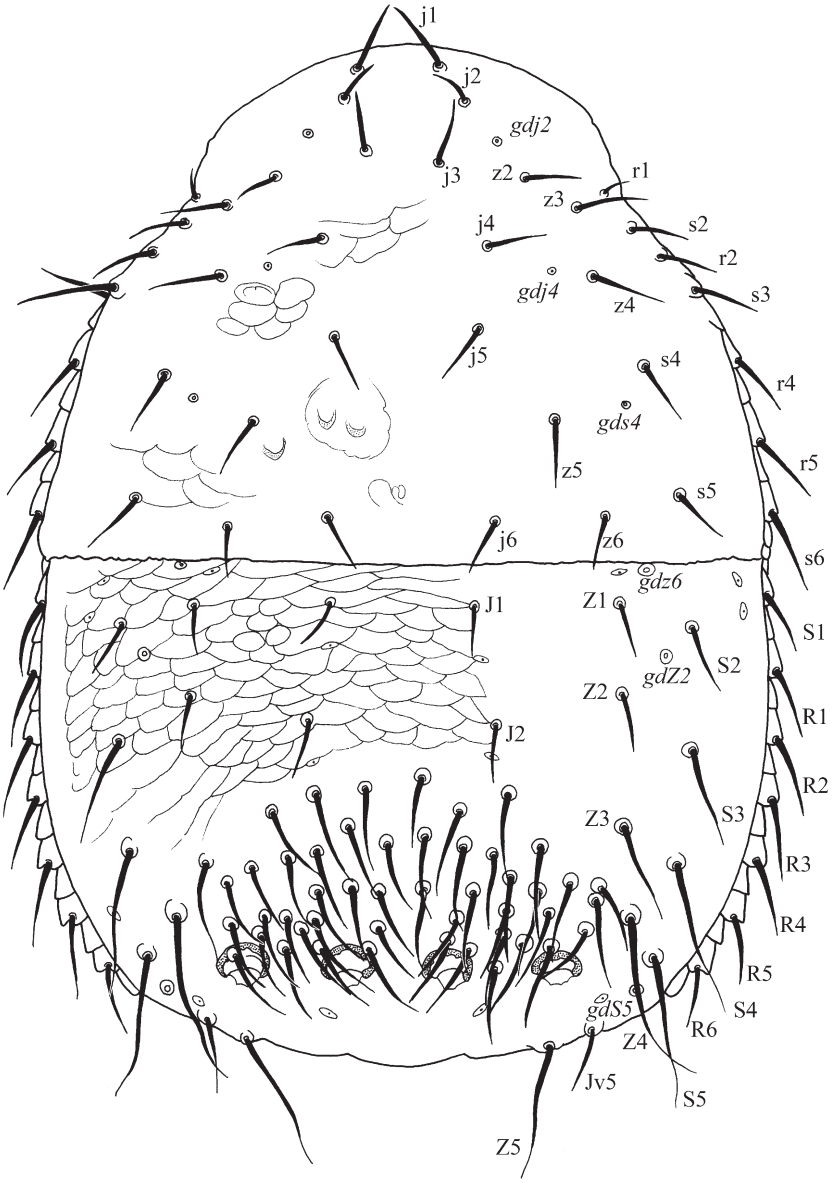
Anterior margin of ventroanal shield with one pair of setae. All dorsal and ventral setae smooth. Podonotal setae s1 absent. Setae Z3-5 and S3-5 long, apically tapering. On the posteromedial surface of opisthonotum more than 40 medium-sized supplementary setae present. Setae Z2 reaching one third the distance from Z3. Glands *gdZ2* (Po2) situated on the line connecting Z2 and S2. Dorsal cavities of general size and appearance, with undulate posterior margins. Opisthonotum anteriorly covered by tile-like ornamentation.

Description

Male. Length of idiosoma: 345 μm; width: 250 μm (n=1).

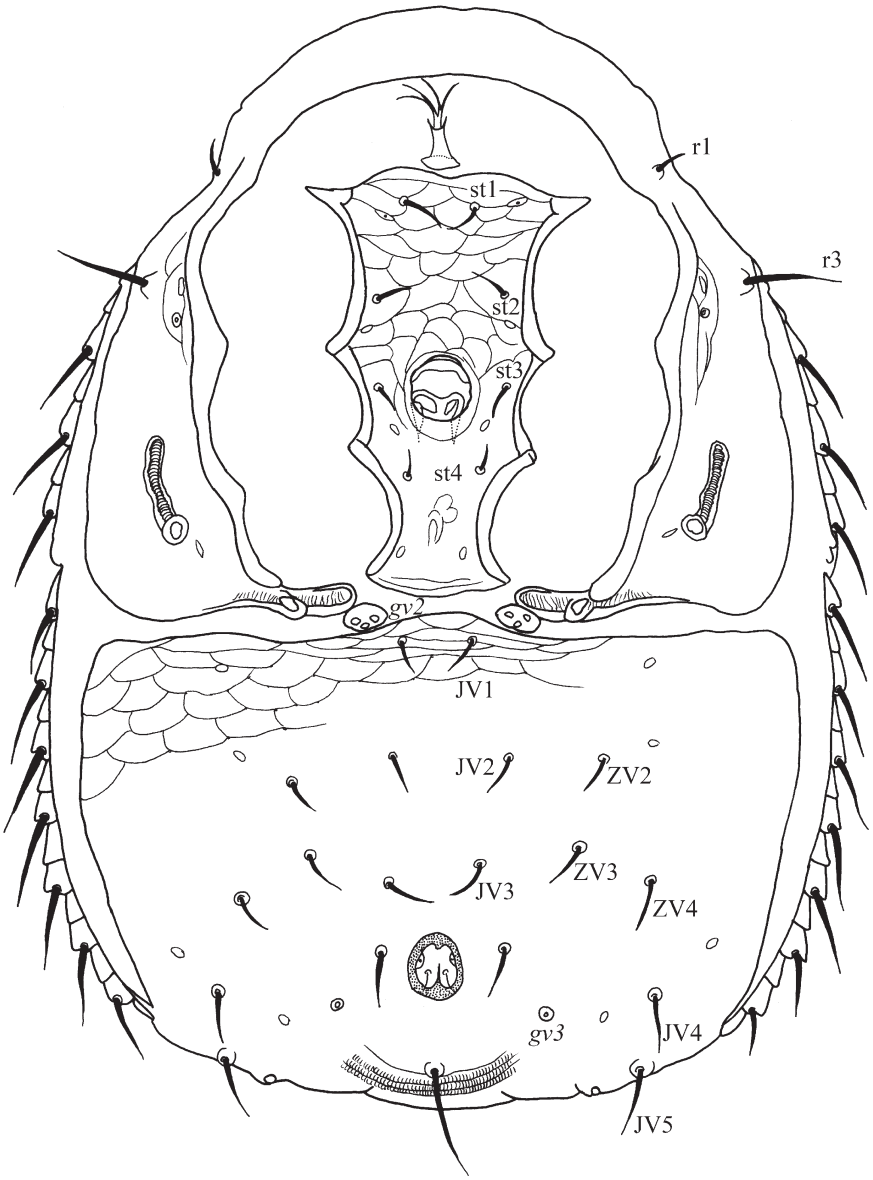
Dorsal side (fig. 1.). Podonotum with 21 pairs of smooth, needle-like setae, s1 absent. Glands *gdj2* (po1) situated on the line connecting j2 and z2, *gdj4* (po2) on the

line connecting j4 and z4, *gds4* (po3) below the line connecting z5 and s4. Podonotum covered by weakly developed, irregular, squamous pattern, around setae z5 and j5 irregular patches can be observed. Opisthonotum with 21 pairs of holotrichous setae and more than 40 supplementary setae (41 additional setae in holotype, this number



1. *Zercon myriasetosus* sp. n. male, dorsal view of idiosoma

presumably varies). Each opisthonotal setae smooth, setiform. Length of setae growing posteriorly in each series. J1-2, Z1-2 and S2 approximately similar in shape and length. Z2 reaching only one third the distance from Z3. Setae J3-5 and supplementary setae uniform, thickened, medium-sized (22-30 μm) and smooth, non of them reaching the posterior margin of opisthonotum. Setae Z3-5 and S3-5 longer than the former ones,



2. *Zercon myriasetosus* sp. n. male, ventral view of idiosoma

smooth, apically tapering. Setae S4-5 reaching beyond the lateral margin of opisthonotum. Marginal setae S1 and R1-6 similar in shape and length to the podonotal marginal setae, tips of setae R1-6 reaching beyond the bases of the following one. Glands *gdz6* (Po1) located antero-laterally to Z1, *gdZ2* (Po2) situated on the line connecting Z2 and S2, Po3 not clearly visible, *gdS5* (Po4) located postero-medially to insertions of S5. Marginal serration shallow, slightly acuminous. Dorsal cavities of general size and appearance, saddle-like, with axes parallel to that of the body, having smooth anterior- and undulate posterior margins. Anterior surface of opisthonotum covered by tile-like sculptural pattern, posterior surface smooth.

Length of opisthonotal setae and the distance between setal insertions within longitudinal setal rows as in Table 1.

Tab. 1. Length of opisthonotal setae and longitudinal distances between their bases in *Zercon myriasetosus* sp. n. male (measurements as mean, in μm).

Setae	Length / distance	Setae	Length / distance	Setae	Length / distance
J1	17	Z1	13	S1	25
J1-J2	43	Z1-Z2	27	S1-S2	27
J2	24	Z2	16	S2	22
J2-J3	29	Z2-Z3	50	S2-S3	40
J3	29	Z3	47	S3	36
J4, J5, Jx	22-30	Z3-Z4	29	S3-S4	37
		Z4	65	S4	59
		Z4-Z5	48	S4-S5	31
		Z5	58	S5	62

Ventral side (fig. 2). Chaetotaxy, poroidotaxy and shape of ventral shields typical for the genus, however both peritremal setae (r1 and r3) smooth, unlike most of *Zercon* species which have feathered or pilose r3. Peritremes relatively short (33 μm), straight. Sternogenital shield well sclerotized, fused with endopodal elements, bearing four pairs of setae (st1-4). The anterior surface of former shield covered by reticulate ornamentation, the surface behind the male genital opening smooth. Three pairs of *gv2* gland openings situated on conspicuous adgenital platelets. Anterior margin of ventroanal shield with one pair of setae. Seven pairs of preanal and one pair of adanal setae short and smooth, postanal seta two times longer than the former ones, smooth. Anal valves with short euanal setae. Sculptural pattern of ventroanal shield weakly developed, anteriorly reticulate, posteriorly smooth.

Female and immature stages. Unknown.

Remarks. The species belongs to the group bearing supplementary seate on the posterocentral region of opsithonotum. The species within this group can be distinguished by the following key:

1. Anterior margin of ventroanal shield with one pair of setae ..... 2.
–. Anterior margin of ventroanal shield with two pairs of setae ..... 3.
2. Podonotal setae s1 lacking, posterocentral surface of opisthonotum with approximately 40 medium sized (22-30 μm) supplementary setae .... *Zercon myriasetosus* sp. n.
–. Podonotal setae s1 present, posterocentral surface of opisthonotum with a maximum of 4-5 long (95-115 μm) supplementary setae ..... *Zercon bisetosus* Balan, 1995
3. Posterocentral supplementary setae with large lateral thorns .... *Zercon armiger* Mašán & Fenďa, 2004
–. Posterocentral supplementary setae smooth ..... 4.
4. Posterior Z- and S-setae apically barbed ..... 5.
–. Posterior Z- and S-setae smooth ..... 6.
5. None of the J- and supplementary setae reaching the posterior margin of opisthonotum ..... *Zercon sylvii* Solomon, 1982
–. Posteriormost J- and supplementary setae reaching beyond the posterior margin of opisthonotum ..... *Zercon trabzonensis* Urhan, 1997
6. Marginal setae long, reaching beyond the insertion of the following setae of the series, posteriormost J- and supplementary setae reaching beyond the posterior margin of opisthonotum ..... *Zercon aniellae* Solomon, 1984
–. Marginal setae short, not reaching beyond the insertion of the following setae of the series, none of J- and supplementary setae reaching beyond the posterior margin of opisthonotum ..... *Zercon echinatus* Schweizer, 1922

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