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A new species of the genus *Nothrholaspis* Berlese (Acari: Macrochelidae) from Iran

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Abstract

A new mite species of the genus *Nothrholaspis* Berlese, *Nothrholaspis saboorii* Babaeian & Joharchi **sp. nov.**, is described and illustrated from specimens collected from soil in the Karaj region of Iran. An identification key for the known species of *Nothrholaspis* is presented.

Key words: Mesostigmata, Macrochelidae, edaphic mites, taxonomy

Introduction

The mesostigmatic mite family Macrochelidae includes about 470 known species and 20 genera. Macrochelids are small to medium sized predatory mites and found in soil, leaf-litter, decaying substrate or associated with insects, particularly scarabaeid dung beetles (Hyatt & Emberson, 1988; Krantz, 1998; Halliday, 2000; Mašán, 2003). The family is presently divided into two subfamilies, namely Neopodocininae Bregetova with only one genus (*Neopodocinum* Oudemans), and Macrochelinae Trägårdh which includes all the other genera (Mašán, 2003; Emberson, 2010). Taxonomic study of Macrochelidae, like most other Mesostigmata, began with a series of works by Antonio Berlese. Different concepts of genera and subgenera have been used by later authors, for example, Evans (1956), Evans & Browning (1956), Krantz (1962), Evans & Hyatt (1963), Bregetova (1977) and Mašán (2003).

Berlese (1918) defined *Nothrholaspis* for the first time as a subgenus of the broad genus *Macrocheles*. Subsequent authors regarded *Nothrholaspis* as a separate genus (Falconer, 1923; Vitzthum, 1930; Willmann, 1939, 1951a, b; Cooreman, 1943; Emberson, 2010; Özbek & Bal, 2013). The genus *Nothrholaspis* is superficially similar in morphology to *Macrholaspis* Oudemans and *Macrocheles* Latreille. Emberson (2010) revised the family and attempted to distinguish between these genera. As a result, the genus *Nothrholaspis* can now be defined more precisely in morphological terms. *Nothrholaspis* is recognised by the distinctive shape of the epistome, the pectinate dorsal cheliceral seta, and by the presence of three pairs of small sclerites between the epigynal and ventri-anal shields (Emberson, 2010).

The genus *Nothrholaspis* is distributed throughout the Palaearctic Region, with species reported from Europe, Caucasus, Romania, China, Japan, Turkey (Bregetova & Koroleva, 1960; Iavorschi, 1977; Hyatt & Emberson, 1988; Ye *et al*., 1994; Takaku, 1998; Ma & Liu, 2003; Özbek & Bal, 2013) and Iran (present study).

Only two species of *Nothrholaspis* have been reported from Iran—*N. carinatus* (C. L. Koch, 1839) and *N. montanus* Willmann, 1951 (Faraji *et al*., 2008). In the present work, a new species of *Nothrholaspis* is described, which requires a small modification to the diagnosis of the genus, so that all setae in the central region of the dorsal shield may be pilose. A new key to the known species of the genus is provided.

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(2013), because the new species has 28 pairs of setae on the dorsal shield and seta *z1* is short and pilose, and does not reach the insertions of *j2*.

Key to the known species of *Nothrholaspis* Berlese, 1918 (based on adult female)

Information about other species of *Nothrholaspis* came from published descriptions and illustrations, not from the examination of specimens. *Nothrholaspis planus* Vitzthum, 1935 is excluded because the setae on the body and legs are almost all smooth, and it is therefore better placed in *Macrocheles* (Vitzthum, 1935).

1.	Dorsal shield with 28 pairs of setae, two pairs of setae in *J* series	2
-	Dorsal shield with 29 pairs of setae, three pairs of setae in *J* series	10
2.	Dorsal seta *z1* short and not reaching the insertions of *j2*	3
-	Dorsal seta *z1* long and reaching the insertions of *j2*	6
3.	All dorsal shield setae pilose	*Nothrholaspis saboorii* Babaeian & Joharchi **sp. nov.**
-	Dorsal shield with a group of more or less smooth setae in the central region	4
4.	Dorsal seta *z1* pilose	5
-	Dorsal seta *z1* simple	*N. shennongjiaensis* (Ma & Liu, 2003)
5.	Dorsal seta *j1* with separate bases, pre-anal setae pilose	*N. sinicus* (Ye, Ma & Chen, 1994)
-	Dorsal seta *j1* with adjacent bases, pre-anal setae simple	*N. carinatus* (C. L. Koch, 1839)
6.	Dorsal shield never with more than three pairs of simple setae (*z1*, *z6* and *j2*)	*N. banaticus* (Iavorschi, 1977)
-	Dorsal shield with more than three pairs of simple setae (*j6*, *z5*, *z6*, *J2* and *J5* simple; other setae such as *j2*, *j5*, *z1*, *s2*, *r3* and *r4* may be similarly formed)	7
7.	Dorsal setae *j2*, *j3*, *s2*, *r3* and *r4* simple	*N. submotus* (Falconer, 1923)
-	Dorsal setae *j2*, *j3*, *s2*, *r3* and *r4* pilose	8
8.	Dorsal seta *z1* simple	9
-	Dorsal seta *z1* pilose	*N. coenosus* (Takaku, 1998)
9.	Dorsal seta *j5* pilose, *Jv2* and *Jv3* about equal in length to *Jv1*	*N. tardus* (Koch, 1841)
-	Dorsal seta *j5* simple, *Jv2* and *Jv3* longer than *Jv1*	*N. dogani* Özbek & Bal, 2013
10.	Dorsal seta *z1* long, dorsal seta *z5* pilose	*N. subcoenosus* (Takaku, 1998)
-	Dorsal seta *z1* short, dorsal seta *z5* (sometimes also setae *j5* and *z1*) simple	11
11.	Ventral shields with pilose setae	*N. anatolicus* Özbek & Bal, 2013
-	Ventral shields with simple setae	12
12.	Dorsal setae *j5* and *z1* pilose	*N. turcicus* Özbek & Bal, 2013
-	Dorsal setae *j5* and *z1* simple	13
13.	Posterior area of sternal shield, behind second pair of pores, ornamented with smaller meshes of punctate-reticulate pattern, movable digit with three teeth	*N. montanus* Willmann, 1951
-	Posterior area of sternal shield, behind second pair of pores, ornamented with larger meshes of punctate-reticulate pattern, movable digit with five teeth	*N. caucasicus* (Bregetova & Koroleva, 1960)

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