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***Metaxonchium persicum* sp. n. from Iran (Nematoda, Dorylaimida, Belonidiridae), with an updated taxonomy of the genus**

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Abstract

A new species of the genus *Metaxonchium* is described from natural habitats in Iran. The new species is characterized by having body length of 2.46–3.12 mm, lip region offset by constriction and 8–11 μ m wide, odontostyle fusiform and 10–12 μ m long, neck 773–1150 μ m long, anterior portion of pharynx bearing a spindle-shaped thickening with valve-like structures inside, both parts of the pharynx separated by a short isthmus-like narrowing, pharyngeal expansion 531–825 μ m long and occupying up to three-fourths of total neck length, female genital system monodelphic-opisthodelphic, anterior genital branch reduced to a large uterine sac and a small terminal mass, posterior uterus long and tripartite with an intermediate region bearing apophyses, $V = 53\text{--}57$, caudal region conoid with broadly rounded terminus (24–35 μ m, $c = 79\text{--}105$, $c' = 0.6\text{--}0.9$), spicules 92–103 μ m long and 7–10 spaced ventromedian supplements, at least two of them within the range of spicules. The taxonomy of the genus *Metaxonchium* is updated, including a list of its species, a key to their identification and a compendium of their morphometrics. Four species are transferred from *Axonchium* to *Metaxonchium*: *M. coxi*, *M. japonicum*, *M. mizukuboi* and *M. zealandicum*.

Key words: description, diagnosis, dichotomous key, Iran, *Metaxonchium*, morphology, new species, SEM, taxonomy

Introduction

Leaving aside the plant parasitic forms of the family Longidoridae Thorne, 1935, we can say that the study of dorylaims in Iran is in its infancy despite the great extent of the country and the abundance and diversity of these nematodes. The matter, however, has received more attention during the last 15 years (by, among others: Jairajpuri *et al.*, 1998; Fadaei, 2003; Pedram *et al.*, 2009; Niknam *et al.*, 2010; Ashrafi *et al.*, 2011; Jabbari *et al.*, 2012; Moslehi *et al.*, 2012; and Mowlavi *et al.*, 2012), resulting in the discovery of many new and known species and demonstrating that Iranian dorylaims are likely as diverse as those from other regions of the world.

Members of the dorylaimid family Belonidiridae Thorne, 1939 are especially poorly known in the country, with only two previous records (Niknam *et al.*, 2010; Mowlavi *et al.*, 2012). A general nematological survey conducted in 2011–2012 yielded several specimens of one species of the genus *Metaxonchium* Coomans & Nair, 1975. Their detailed examination revealed they represented an unknown form. Its description is given in this paper, along with a discussion of the taxonomy of the genus.

Material and methods

Soil samples were collected in different areas of East Azarbaijan province, including the Mahmood Abad region of the Arasbaran rangelands, in northwest Iran. Nematodes were recovered by a modified combined sieving and centrifugation flotation method (Jenkins, 1964) and processed to anhydrous glycerine following De Grisse's (1969) protocol. Measurements were obtained using a drawing tube attached to an Olympus BHS light microscope. Some

	pieces, equal in length and width	12
12a	Female tail with a small submammillate terminus; spicules 98–106 μm long	<i>nobile</i>
12b	Female tail terminus lacking any differentiation; if male present, spicules less than 90 μm long	13
13a	<i>Pars distalis vaginae</i> nearly totally surrounding the <i>pars refringens</i> ; spicules 86–87 μm long	<i>coronatum</i>
13b	<i>Pars distalis vaginae</i> not surrounding the <i>pars refringens</i> ; spicules less than 80 μm long	14
14a	Male with 22–30 nearly contiguous ventromedian supplements	<i>serpens</i>
14b	Male, if present, with 10 widely spaced ventromedian supplements	15
15a	Larger female body, 3.03–3.78 mm long; longer prerectum, 9.6 times the anal body diameter; male absent	<i>coxi</i>
15b	Smaller female body, 2.7 mm long; shorter prerectum, 3.8 times the anal body diameter; male present	<i>zealandicum</i>
16a	Smaller general size, body length less than 2.0 mm, very exceptionally more	17
16b	Larger general size, body length more than 2.0 mm, very exceptionally less	20
17a	Both pharyngeal sections separated by an isthmus-like narrowing, non-abutting; female tail conoid and longer (30–36 μm ; $c' = 1.0$ –1.2); 13–15 contiguous ventromedian supplements with large hiatus	<i>thornei</i>
17b	Both pharyngeal sections separated by a deep constriction and abutting; female tail rounded and shorter (24–30 μm ; $c' = 0.7$ –1.0); 7–9 spaced ventromedian supplements with short or no hiatus, if male present	18
18a	Lip region 7–9 μm wide; prevulval uterine sac 16–38 μm long, less than the corresponding body diameter; male absent	<i>kainahillum</i>
18b	Lip region 10–12 μm wide; prevulval uterine sac 73–174 μm long or 2–3 times the corresponding body diameter; males frequent	19
19a	Body smaller (1.65–1.80 mm long) and more slender ($a = 42$ –48); vulva more anterior ($V = 52$ –54); ventromedian supplements arranged in two separated groups; spicules with anterior slender part and posterior thickened part	<i>spiculum</i>
19b	Body larger (1.73–1.99 mm long) and less slender ($a = 29$ –39); vulva more posterior ($V = 55$ –57); ventromedian supplements not arranged in two separate groups; spicules with usual morphology	<i>tacitum</i>
20a	Odontostyle attenuate, slender and 1.5 times the lip region diameter; female tail convex conoid, slightly longer than anal body diameter	<i>solitare</i>
20b	Odontostyle more robust, fusiform, barely longer than lip region diameter; female tail more rounded and always shorter than anal body diameter	21
21a	Female tail longer (30–36 μm); male with 19–24 ventromedian supplements	<i>choristum</i>
21b	Female tail shorter (22–31 μm); male, if present, bearing up to eleven ventromedian supplements	22
22a	Vulva more posterior ($V = 58$ –59)	<i>leptocephalum</i>
22b	Vulva more anterior (V up to 57)	23
23a	Female body more slender ($a = 46$ –52); lip region 8–10 μm broad; male bearing seven ventromedian supplements and with hiatus	<i>mizukuboi</i>
23b	Female body more obese ($a = 29$ –42); lip region 11–12 μm broad; male, if present, bearing 10–11 ventromedian supplements and without hiatus	24
24a	Female anterior genital branch consisting of a simple uterine sac 3.3–4.1 times the corresponding body diameter long; male present	<i>japonicum</i>
24b	Female anterior genital branch consisting of a small reflexed ovarial mass, oviduct, sphincter and uterus, all together 2.3 times the corresponding body diameter long; male absent	<i>micans</i>

Table 2 provides a compendium of *Metaxonchium* species with taxonomically important morphometric characters and information on their currently known distribution.

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