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DESCRIPTION OF ONE NEW SPECIES OF THE WATER MITE
GENUS NILOTONIA THOR, 1905 (ACARI, HYDRACHNIDIA)
FROM IRAN

by V. PESIC¹ & A. SABOORI²

(Accepted October 2005)

ACARI
WATER MITES
TAXONOMY
NEW SPECIES
IRAN

SUMMARY: Nilotonia persica n. sp. is described from the Yazd Province (Central Iran). It is the first representative of the subgenus Manotonia (K. Viets, 1935) from Iran. A key to females of the world species of the subgenus Manotonia is provided.


INTRODUCTION


During a survey of the freshwater fauna of Iran, a new species of the water mite genus Nilotonia Thor, 1905 (Nilotonia persica sp. nov.) was collected. It is the second representative of the subgenus Manotonia described from Asia.

MATERIAL AND METHODS

Water mites were collected by hand netting, sorted on the spot from other living material, preserved in Koenike’s fluid and dissected as described elsewhere (e.g. Gerecke, 1991). The holotype the new species is deposited in the Museum of the Natural History of Podgorica (Montenegro). In the section “Type material” collecting site abbreviations derive from the geographical database of Vladimir Pesic (Podgorica).

¹. Department of Biology, Faculty of Sciences, University of Montenegro, 81000 Podgorica, Serbia and Montenegro (email: pesicv@cg.yu).
². Department of Plant Protection, College of Agriculture, University of Tehran, Karaj, Iran (email: saboori@ut.ac.ir).

Figs. 1-6. *Nilotonia (Manotonia) persica* n. sp. female: 1. — idiosoma, dorsal view; 2. — idiosoma, ventral view; 3. — chelicera; 4. — gnathosoma; 5. — palp; 6. — IV-L-6. Scale Bars = 0.1 mm.
All measurements are given in \( \mu m \). The following abbreviations are used: \( Ac-1 = \) first acetabulum, \( Cx-1 = \) first coxae, \( L = \) length, \( I-L-6 = \) Leg 1, sixth segment, \( P-1 = \) palp, first segment, \( postoc = \) postocularia, \( V = \) ventralia, \( Vgl = \) ventro-glandularia, \( W = \) width.

**RESULTS**

*Nilotonia (Manotonia) persica* sp. nov.

(Figs. 1-10, Table 1)

Type material: Holotype: female, dissected and slide mounted in Hoyer’s fluid. Iran: IR42 Yazd Province, Pandar spring (rheohelocrenic) in Pandar village (ca. \(31^\circ28'N \ 54^\circ12'E\), 96 km from Yazd), 2840 m asl., 5 Aug. 2003, leg. Pesic. Paratypes: one female, IR41 Yazd Province, Lah stream (first order brook) in Sang Deraz village, (ca. \(31^\circ28'N \ 54^\circ12'E\), 96 km from Yazd,), 2838 m asl., 5 Aug. 2003, leg. Pesic, preserved in Koenike’s fluid.

**Diagnosis:** Female: Idiosoma \( L = 757-792 \); dorsal shield relatively large (\( L/W = 211-220/206-208 \)); postgenital sclerite not enlarged; \( P-4 \) with minute ventral tubercles, chelicera relatively more slender (\( L/H \) ratio 7.8-8.2); \( L-IV-6 \) apically with a pair of rudimentary claws; claws on the other legs with a clawlet on outer side and one rudimentary peg-like clawlet on inner side.

<table>
<thead>
<tr>
<th>Leg segments, dorsal L</th>
<th>I-L</th>
<th>II-L</th>
<th>III-L</th>
<th>IV-L</th>
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</thead>
<tbody>
<tr>
<td>Segm.1</td>
<td>54</td>
<td>67</td>
<td>83</td>
<td>142</td>
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<tr>
<td>Segm.2</td>
<td>76</td>
<td>79</td>
<td>100</td>
<td>102</td>
</tr>
<tr>
<td>Segm.3</td>
<td>86</td>
<td>95</td>
<td>108</td>
<td>120</td>
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<tr>
<td>Segm.4</td>
<td>104</td>
<td>118</td>
<td>192</td>
<td>175</td>
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<tr>
<td>Segm.5</td>
<td>125</td>
<td>150</td>
<td>197</td>
<td>204</td>
</tr>
<tr>
<td>Segm.6</td>
<td>135</td>
<td>170</td>
<td>175</td>
<td>202</td>
</tr>
<tr>
<td>Total L</td>
<td>580</td>
<td>679</td>
<td>855</td>
<td>945</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Dorsal L (% of total length)</th>
<th>I-L</th>
<th>II-L</th>
<th>III-L</th>
<th>IV-L</th>
</tr>
</thead>
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<td>9.9</td>
<td>9.7</td>
<td>15.0</td>
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<td>Segm.2</td>
<td>13.1</td>
<td>11.6</td>
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<td>10.7</td>
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<tr>
<td>Segm.3</td>
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<td>13.9</td>
<td>12.6</td>
<td>12.6</td>
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<td>17.4</td>
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<td>18.5</td>
</tr>
<tr>
<td>Segm.5</td>
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<td>22.0</td>
<td>23.0</td>
<td>21.6</td>
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<tr>
<td>Segm.6</td>
<td>23.3</td>
<td>25.0</td>
<td>20.5</td>
<td>21.4</td>
</tr>
</tbody>
</table>

Table 1: *Nilotonia (Manotonia) persica* sp. nov. Leg measurements (\( L = \) length).

**Description:** Female (some measurements of paratype are given in parentheses): Length 792 (757), width 650 (600), soft bodied. Position of eyes and glandualaria as in other species of the genus. Dorsal view (Fig. 1): in the anterior part of the dorsum a pair of roundish sclerites, formed by the fusion of postocularia with a pair of postfrontalia, in its posterior part a single, oval dorsal shield, 220 (211) in length, 208 (206) in width. Ventral view (Fig. 2): posterior coxal groups rounded and with posterior secondary sclerotization; suture lines between third and fourth suture incomplete; coxoglandularia 3 fused with Cx-3; coxoglandularia 4 not fused with the secondary sclerotization of Cx-4. Genital field is placed in a genital bay formed by the Cx-4, 220 (225) in length, 129 (128) in width, with three pairs of acetabula, individual genital flaps 179 (172) in length, 64 (63) in width, praegenital sclerite halfmoon–shaped 100 (97) in width; excretory porus at a distance of 192 from the postgenital sclerite. Excretory pore smooth, ventroglandularia 3 lying separate in the membranous cuticula.

Gnathosoma (Fig. 4) ventral L 295 (300), H 136, L/H 2.2; chelicera (Fig. 3) L 345 (341), L/H ratio 7.8 (8.2), cheliceral claw L 89 (94), basal segment/claw L ratio 2.9 (2.6); palp: total L 400 (389), dorsal length: P-1 29 (30), P-2 113 (113), P-3 79 (74), P-4 154 (139), P-5 34 (33), relative length (in parentheses % of total...
length): P-1 7.3 (7.7), P-2 28.3 (29.1), P-3 19.8 (19.0), P-4 38.5 (35.7), P-5 8.5 (8.5); chaetotaxy of palps as in other species of the genus (Fig. 5): P-2 ventrally straight and smooth, ventral bristle relatively short, 27 (31) in length, ratio ventral L / bristle L 2.8 (2.5); P-4 with minute ventral tubercles.

Legs (Table 1): for shape and chaetotaxy of leg segments, see Figs. 7-10; L-IV-6 apically with a pair of rudimentary claws (Fig. 6); claws on other legs with a clawlet on outer side and one rudimentary peg-like clawlet on inner side (Fig. 9a).

Male: unknown.

Discussion: Due to the similar extent of the sclerotization on the dorsum (two small postocularia platelets and a posteromedial platelet) and the ventrum (secondary sclerotization posterior to the Cx-4), Nilotonia persica sp. nov., is similar to Nilotonia tegulata K.Viets, 1951, N. violacea Lundblad, 1952, and N. gracilipalpis Lundblad, 1942. N. persica sp. nov., can be easily distinguished from N. tegulata, by the presence of one rudimentary peg-like clawlet on the inner side of claws on the anterior three pairs of legs and the mediially rounded Cx-3 (straight in N. tegulata). N. violacea (in parentheses, data taken from Lundblad, 1952), differs from N. persica sp. nov., in a slightly enlarged postgenital sclerite, a relatively shorter gnathosoma (vL 200), a relatively thicker chelicera (L/H ratio 4.96, calculated from figure), and a major idiosoma and palp dimensions (e.g. idiosoma L 860, L posteromedial platelet 235, genital flap L 224, palp total L 480).

N. persica sp. nov., differs from N. gracilipalpis (in parentheses, data taken from Lundblad, 1942), in the presence of minute ventral tubercles on P-4, a more elongated gnathosoma, a relatively more slender chelicera (L/H ratio 6.0, calculated from figure), a shorter ventral bristle on P-2 (ratio ventral L / bristle L 1.7, calculated from figure), a slightly larger dorsal shield dimensions (L 175), and minor idiosomal and palp dimensions (e.g. idiosoma L 1034, genital flap L 193, palp total L 492).

Nilotonia shivai Panesar, 2004, the second known Manotonia species described from Asia (southwestern Himalayas), can be easily distinguished from all other species of the subgenus Manotonia by the combination of a single and large dorsal shield, a slightly enlarged postgenital sclerite and a P-1 with dorsal seta (Panesar, 2004).

Etymology: The species is named for its occurrence in Iran (Persia).

Biology: Probably crenobiontic or at least crenophilous species. The collecting sites refer to a rheohelocrenic spring (IR42) and to a particular situation where on a limited area, a rheohelocrenic and rheocrenic spring forms a first order brook (IR41); in both cases with considerable exposure to sunlight and with permanent water flow all through the year.

Distribution: Iran, only known from the Yazd Province.

KEY TO FEMALES OF THE WORLD SPECIES OF THE SUBGENUS Manotonia (K.Viets, 1935)

1. Excretory porus «on small sclerotized tubercle»; no secondary sclerotization is present ventrally; the ventral margins of P-2 appears waved ............................... N. petri Cook, 1979 (Ghana)

1'. Excretory porus separate in the chitinous cuticle, without any sclerifications; secondary sclerotization is present ventrally; the ventral margins of P-2 not appears waved. ........................................ 2

2. Dorsum with platelets enlarged and fused in various ways. .................................................. 3

2'. Dorsum with two small postocularia platelet and a posteromedial plate. ............................... 5

3. Dorsum with a single dorsal shield. .................. 4

3'. Dorsum with two-parted dorsal shield. .......... 4


5. Postgenital sclerite strongly enlarged ......... Nilotonia testudinata Cook, 1966 (Liberia)

6. Claws on anterior three pairs of legs. ............... 6

6'. Without rudimentary peg-like clawlet on inner side of claws on anterior three pairs of legs. (The unknown female of N. muscicola (Walter, 1935) (from Ivory Coast) may need to be keyed out; males differ from M. tegulata in well developed ventral tubercles on P-4, and a more enlarged postgenital sclerite). Nilotonia tegulata (K.Viets, 1951) (Africa-Algeria, Europe-Italy, Spain, Greece)

7. Postgenital sclerite not enlarged, chelicera relatively slender L/H > 7.0 ............................... N. persica sp. nov. (Iran)

7'. Postgenital sclerite slightly enlarged, chelicera relatively thicker L/H < 6.0 ............................... N. violacea Lundblad, 1951 (Kenya)

8. Without rudimentary peg-like clawlet on inner side of claws on anterior three pairs of legs. (The unknown female of N. muscicola (Walter, 1935) (from Ivory Coast) may need to be keyed out; males differ from M. tegulata in well developed ventral tubercles on P-4, and a more enlarged postgenital sclerite). Nilotonia tegulata (K.Viets, 1951) (Africa-Algeria, Europe-Italy, Spain, Greece)

9. Dorsum with a single dorsal shield. ............... 9

9'. Dorsum with two-parted dorsal shield. .......... 9

10. Dorsum with a single dorsal shield. ......... Nilotonia testudinata Cook, 1966 (Liberia)

11. Postgenital sclerite strongly enlarged ......... Nilotonia testudinata Cook, 1966 (Liberia)

12. Claws on anterior three pairs of legs. ............... 12

12'. Without rudimentary peg-like clawlet on inner side of claws on anterior three pairs of legs. (The unknown female of N. muscicola (Walter, 1935) (from Ivory Coast) may need to be keyed out; males differ from M. tegulata in well developed ventral tubercles on P-4, and a more enlarged postgenital sclerite). Nilotonia tegulata (K.Viets, 1951) (Africa-Algeria, Europe-Italy, Spain, Greece)
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