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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)

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).

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All measurements are given in \( \mu \text{m} \). 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\degree 28’ N 54\degree 12’ 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\degree 28’N 54\degree 12’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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<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>
</tr>
<tr>
<td>Segm.4</td>
<td>104</td>
<td>118</td>
<td>192</td>
<td>175</td>
</tr>
<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>
<tbody>
<tr>
<td>Segm.1</td>
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<td>9.9</td>
<td>9.7</td>
<td>15.0</td>
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<tr>
<td>Segm.2</td>
<td>13.1</td>
<td>11.6</td>
<td>11.6</td>
<td>10.7</td>
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<tr>
<td>Segm.3</td>
<td>14.8</td>
<td>13.9</td>
<td>12.6</td>
<td>12.6</td>
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<tr>
<td>Segm.4</td>
<td>17.9</td>
<td>17.4</td>
<td>22.5</td>
<td>18.5</td>
</tr>
<tr>
<td>Segm.5</td>
<td>21.6</td>
<td>22.0</td>
<td>23.0</td>
<td>21.6</td>
</tr>
<tr>
<td>Segm.6</td>
<td>23.3</td>
<td>25.0</td>
<td>20.5</td>
<td>21.4</td>
</tr>
</tbody>
</table>

**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...
Figs. 7-10. *Nilotonia (Manotonia) persica* n. sp., female: 7 - I-L; 8 = II-L; 9 - III-L, 9a - claw; 10 - VI-L. Scale bar = 0.1 mm.
N. violacea and the medially rounded Cx-3 (straight in inner side of claws on the anterior three pairs of legs, presence of one rudimentary peg-like clawlet on the inner side (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 posteromedia 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 medially 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 posteromedia 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 palpal 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 (south-western 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 posteromedia plate. ......................... 5

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

3’. Dorsum with two-parted dorsal shield. .......... Nilotonia scutata Cook, 1966 (Liberia)

4. Postgenital sclerite slightly enlarged. .......... N. shivai Panesar, 2004 (Himalayas, India)

4’. Postgenital sclerite strongly enlarged .......... N. testudinata Cook, 1966 (Liberia)

5. Claws on anterior three pairs of legs with one rudimentary peg-like clawlet on inner side. ........ 6

5’. 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). .......... N. tegulata (K.Viets, 1951) (Africa-Algeria, Europe-Italy, Spain, Greece)

6. P-4 with well developed ventral tubercles .......... N. gracilipalpis Lundblad, 1942 (Ethiopia)

6’. P-4 with minute ventral tubercles .......... 7

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

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