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THE EUPODID MITES OF EGYPT
(ACARI : EUPODOIDEA : EUPODIDAE)

BY Badawi A. ABOU-AWAD *

EUPODIDAE FROM EGYPT

ABSTRACT : Two eupodid mites, Egypteupodes strandtmanni sp. n. representing a new genus and Eupodes momenti sp. n. are described and illustrated. Moreover, two established species Eupodes temperatus Shiba and Eupodes voxencollinus Sig Thor have been firstly recorded in Egypt.

EUPODIDAE D’ÉGYPTE

RÉSUMÉ : Le nouveau genre Egypteupodes de la famille des Eupodidae, et les nouvelles espèces Egypteupodes strandtmanni et Eupodes momenti sont décrits et figurés. La présence en Égypte des espèces Eupodes temperatus Shiba et Eupodes voxencollinus Thor est relevée pour la première fois.

INTRODUCTION

In Egypt, eupodoid mites are very poorly known and intensive collecting should yield a large number of new species. No work was done to survey these mites in our country. The present paper deals with a number of family Eupodidae collected from grass, litter and the upper soil layer. They are fast moving and extremely fragile Acarina. Members of genus Eupodes are the most common eupodid mites in Egypt. Through this work, four species were collected belonging to genera Egypteupodes gen. n. and Eupodes, and described.

FAMILY EUPODIDAE KOCH, 1842

Genus : Egypteupodes gen. n.

This genus comes close to Eupodes Koch, 1835 in having swollen femur but can be distinguished and separated from it and other genera of the Family Eupodidae primarily by lacking internal vertical setae on epivertex (naso) and the most dorsal body setae are swollen basally. It is defined as follows : soft-bodied mites. Suture between propodosoma and metapodosoma present. Propodosoma is provided with a small nearly rounded plate (epivertex), without internal vertical setae ; three pairs of setae, one of which is sensory (trichobothria), are also present on propodosoma. Hysterosoma bears eight pairs of dorsal setae. Most dorsal body setae swollen basally.

Coxae in 2 groups, not well defined. Trochanters with 1-1-1-1 setae. Coxal setal formula I-IV : 3-1-4-3 ; inner seta of coxa IV separated from its plate. Genitalia bracketed by 5 pairs of paragenital setae ; genital setae, 6 + 6 (occasionally 5 + 6), 2 pairs of genital discs. Anal pore terminal ; 3 pairs of anal setae of which the first are the shortest. Gnathosoma. Hypostome conical, and with 2 pairs of small nude setae ; one pair apical, the other basilateral. Chelicerae narrow,

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with small malformed chelae. Cheliceral setae not obvious. Some ventral setae tend toward clavate. Pedipalps 4-segmented, with 0-2-3-6 or 7 setae; apical segment medium and elongate. Legs except IV, slender. Leg I longer than body, II-III shorter than body, IV about body length, thickened femur. Tarsi I and II each with 2 and 1 rhagidial organs respectively.

Genotype: Egypteupodes strandtmanni sp. n.

**Egypteupodes strandtmanni** sp. n. (Figs 1-2)

■ **FEMALE**: Dimensions in microns. Length of body (excluding gnathosoma) 325-425; width of body 192.5-250. The type specimen long, 215 wide. Dorsum. Suture between propodosoma and matapodosoma evident. Epivertex without internal vertical setae. Trichobothria, sparsely ciliated, not swollen. Lengths of dorsal setae: v.e. 53, sc. 41, tr. 77, h.i. 63, h.e. 50, d1 72, d2 55, l.i. 30, l.e. 99, s.i. 95, s.e. 93. External verticals and scapulars weakly swollen basally; setae v.e., sc., h.i., h.e., d1 and d2 generally curving upward. Venter. Coxae not well defined. Trochanters, 1-1-1-1; seta of trochanter IV swollen basally. Coxal setae formula I-IV: 3-1-4-3, inner seta of coxa IV separated from its plate, inner setae of coxae I and II tend toward clavate, outer seta of coxa III swollen basally. Five pairs of paragenital setae. Each genital cover with 6 genital setae, in which the 4th is more lateral than the others. Genital and paragenital setae tend toward clavate. Two pairs of genital discs. Anal pore terminal. Anal seta I (47 $\mu$m) about 1/2 as long as anal seta 2 (89 $\mu$m); anal seta 3, the longest (97.5 $\mu$m). Gnathosoma. Hypostome conical, with 2 pairs of nude setae; one pair apical (each seta 6 $\mu$m), the other basilateral. Pedipalpal setae 0-2 (swollen basally)-3 (basal seta swollen)-6; the apical segment of pedipalp has either 6 or 7 setae (they are very difficult to distinguish), 24 $\mu$m long, next segment 40 $\mu$m long. Legs. Leg I, slightly longer than body, II-IV shorter than body; femur IV enlarged. Femora (except II), each with distinct division; femur II partially divided. The dorsal leg setae weakly swollen basally. Leg chaetotaxy of adult:

<table>
<thead>
<tr>
<th></th>
<th>Femur</th>
<th>Genu</th>
<th>Tibia</th>
<th>Tarsus</th>
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<tr>
<td>I</td>
<td>10</td>
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<td>II</td>
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<td>IV</td>
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Tarsus I with 2 tandem rhagidial organs subtended by a stellate seta. Tarsus II with 1 rhagidial organ. There are apparently no sensory setae on any of leg segments. Measurements of legs are as follows:

<table>
<thead>
<tr>
<th></th>
<th>Troch.</th>
<th>Femur</th>
<th>Genu</th>
<th>Tibia</th>
<th>Tarsus</th>
<th>Total</th>
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<tbody>
<tr>
<td>I</td>
<td>27.50</td>
<td>108.75</td>
<td>41.25</td>
<td>92.50</td>
<td>70.00</td>
<td>442.50</td>
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<tr>
<td>II</td>
<td>22.50</td>
<td>90.00</td>
<td>46.25</td>
<td>45.75</td>
<td>253.75</td>
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<tr>
<td>III</td>
<td>20.00</td>
<td>55</td>
<td>46.25</td>
<td>42.50</td>
<td>62.50</td>
<td>266.25</td>
</tr>
<tr>
<td>IV</td>
<td>21.25</td>
<td>110</td>
<td>52.50</td>
<td>57.50</td>
<td>91.25</td>
<td>365.00</td>
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</tbody>
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■ **MALE**: Length of body (excluding gnathosoma) 375-390; width of body 190-200. Differs from the female only in the genitalia. Genital setae, 5 + 6. The sperm sac longer than the genital covers and typically clavate. Leg I of male much longer than body. Average measurements of legs are : 490, 275, 268 and 377 respectively.

**Holotype**: Female. Kafr El-khadra, Monufia region; regular existence in winter, favoured soil depth 0 to 5 cm, under citrus and pear tress.

**Paratype**: 9 ♀♀, 11 ♂♂, collected from Giza region and same locality as holotype.

**Type material**: The holotype, allotype and paratype kept in the collection of Plant Protection Department, National Research Centre, Dokki, Cairo, Egypt.
FIG. 1: *Egypteupodes strandmanni* sp. n., female.
A. — Dorsal view; B. — Ventral view.
Fig. 2: *Egyptiupodes strandmanni* n. sp.
A. — Apical segment of leg I; B. — Apical segment of leg II; C. — Pedipalp; D. — Legs I-IV; E. — Male genitalia.
Genus *Eupodes* C. L. Koch, 1835

**Eupodes momeni** sp. n.

(Fig. 3)

This new species closely resembles *Eupodes ereynetoides* Strandtmann & Prasse 1977, but is distinguished from it in the following: epivertex terminal; relatively longer body setae, one less pair of genital setae; tarsi I and II each with only one normal rhagidial organ.

**FEMALE**: Length of body (excluding gnathosoma) 213-280 μm; width of body 120-175 μm. The type specimen is 232.5 μm long, 131.5 μm wide. Dorsum. Shoulders prominent, suture between propodosoma and metapodosoma evident. Epivertical lobe terminal, with a pair of sparsely ciliated setae. Trichobothria slender, sparsely ciliated. Interna lumbar setae long, resembling trichobothria. Lengths of dorsal setae in microns: v.i. 19, v.e. 16, tr. 67.5, sc. 17, h.i. 17.5, h.e. 20, d1 20, d2 21, l.i. 62, l.e. 20, s.i. 39, s.e. 16. Ven- ter. Trochanters, 1-1-1-1; finely ciliated setae. Coxal setae formula I-IV : 3-1-4-3, slightly clavate. The setae of coxa I measure as follows: outer, 9.5 μm; middle, 18.5 μm; inner, 13.5 μm. Genital setae, 6 + 6; paragenital setae, 4 + 4. Genital and paragenital setae tend toward clavate. Two pairs of medium-size genital discs. Anal pore terminal; the three pairs of anal setae measure: a1, 8 μm; a2, 13 μm; a3, 34 μm. Hypostome with 2 pairs of nude setae; one pair apical, the other basi-lateral. The apical setae of the hypostome are each 6 μm long. Pedipalpal setae 0-2-3-6, ciliated; apical segment, 11.5 μm long; next segment 21 μm long. Legs. Short, slender, finely ciliated setae. Leg I about equal to length body; other legs shorter than body. Femorae I and II with indistinct divisions; III and IV with distinct divisions. Femur IV distinctly swollen. Leg chaetotaxy of adult:

<table>
<thead>
<tr>
<th>Femur</th>
<th>Genu</th>
<th>Tibia</th>
<th>Tarsus</th>
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<td>IV</td>
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</table>

Tarsi I and II each have only one normal rhagidial organ; rhagidial organ of tarsus I subtended by a stellate seta. Genu I and tibiae II each with one dorsoapical rhagidial organ. Measurements of legs (in μm) are as follows:

<table>
<thead>
<tr>
<th>Troch.</th>
<th>Femur</th>
<th>Genu</th>
<th>Tibia</th>
<th>Tarsus</th>
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</tr>
</thead>
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<tr>
<td>I</td>
<td>19</td>
<td>71</td>
<td>41</td>
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<td>II</td>
<td>13</td>
<td>45</td>
<td>22</td>
<td>23</td>
<td>32</td>
</tr>
<tr>
<td>III</td>
<td>15</td>
<td>23 + 19</td>
<td>21</td>
<td>25</td>
<td>41</td>
</tr>
<tr>
<td>IV</td>
<td>13</td>
<td>48 + 15</td>
<td>32</td>
<td>31</td>
<td>47.5</td>
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</tbody>
</table>

**Holotype**: Female. Faculty of Agric., Ain Shams Univ., El-galiubiya region, regular existence in winter; collected from litter by F. M. K. MOMEN, Plant Protection Dept., N.R.C., for whom I name this species.

**Paratypes**: 13 ♀♀, collected from Giza region and same locality as holotype.

**Type material**: A holotype slide and paratype slides kept in the collection of Plant Protection Dept., N.R.C., Dokki, Cairo, Egypt.

The following species of eupodid mites are recorded in Egypt for the first time:

**Eupodes voxencollinus** Sig Thor, 1934

**Synonymy**: *Eupodes acuminatus* Willmann, 1952

*Eupodes alaskanensis* Strandtmann, 1971

This species may be recognized in the following:

Length of body (excluding gnathosoma), 355 μm, width of body, 205 μm. Coxal setal formula : 3-1-4-3. Genital setae 6 + 6; paragenital setae 6 + 6. The dorsal ciliated setae are long, reaching or passing the succeeding setae. Tarsus I with two tandem rhagidial organs, subtended by a...
FIG. 3: *Eupodes momeni* sp. n.
A. — Dorsal view of female; B. — Ventral view of female; C. — Legs I-IV; D. — Apical segment of leg I; E. — Apical segment of leg II; F. — Pedipalp.
stellate seta. Tarsus II also has two rhagidial organs. Measurements of legs I-IV are: 425 µm, 252 µm, 257.5 µm and 353.75 µm.

**Material examined**: Two females, El-Ismaïlia region; 9 females, Giza region. Collected in winter and spring from grass and the upper soil layer.

*Eupodes temperatus* Shiba, 1978

This species is characterized in the following: length of body (excluding gnathosoma), 420 µm; width of body, 275 µm. Coxal setal formula: 3-1-4-3. Genital setae 6+6; paragenital setae 7+7. External verticals and scapulars subequal, about 1/2 as long as the trichobothria (70 µm). Legs with finely ciliated setae. Tarsi I and II each with 2 rhagidial organs, on tarsus I with a stellate seta. Legs of this species shorter than published species in Japan. Measurements of legs I-IV: 440 µm, 230 µm, 240 µm and 350 µm.

**Material examined**: 3 females, Kafr El-Khadra, Monufia region. Collected in winter, under wheat plants, 0-5 in depth.

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**Explanation of Symbols Used**

- $a_1$ — Anal seta 1
- $a_2$ — Anal seta 2
- $a_3$ — Anal seta 3
- $d_1$ — Dorsal seta 1
- $d_2$ — Dorsal seta 2
- $h.i.$ — Internal humeral seta
- $h.e.$ — External humeral seta
- $l.i.$ — Internal lumbar seta
- $l.e.$ — External lumbar seta
- $s.i.$ — Internal sacral seta
- $s.e.$ — External sacral seta
- $v.i.$ — Internal vertical seta
- $v.e.$ — External vertical seta
- $sc.$ — Scapular seta
- $tr.$ — Trichobothrium

**REFERENCES**


