

A New Mite Species of the Genus *Asca* (Mesostigmata: Ascidae) from Egypt

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ABSTRACT

Asca aegyptiaca sp. nov., is described from Egypt, the genus is recorded for the first time and collected from leaves and debris of soybean at Menia governorate (Midle Egypt).

Key words: Mesostigmata; Ascidae; *Asca*; new species; soybean.

INTRODUCTION

Mites of the genus *Asca* Heyden, are, predatory mites, feed on various arthropods and entomogenous species of nematodes. (Hurlbutt 1963, 1971; Walter 1988; Epsky *et al.*, 1988 and Walter & Proctor, 1999). Species of this genus are inhabiting leaf litter, soil moss-covered tree trunks in bark beetle gallareis (Stone & Simpson 1991), termite's and bird's nests (Ryke 1961 and Lindquist *et al.*, 2009). Karg (1979) reviewed the genus *Asca* and mentioned that 75 species were presented in the world, at that time and gave a key for various species. Many species have been described and illustrated by Tseng (1981); Walter *et al.*, (1993); Lee *et al.*, (1997) and Beard *et al.*, (2011).

In Egypt, genus *Asca* has been recorded for the first time by a new species *Asca aegyptiaca* sp. nov. collected from leaves and debris of soybean at Mallawy, Menia governorate, (Midle-Egypt). The description and illustrations of this new species are given here.

MATERIALS AND METHODS

Leaf samples were bagged and placed in an ice box until examined. Mites were collected with a fine camel-hair brush, and cleared in Nesbitt's solution before mounting in Hoyer's medium on microscope slides. Measurements in micrometers (μm) were made from specimens flattened on microscope slides using a stage-calibrated ocular micrometer and presented in parentheses as ranges (minimum to maximum). Lengths of shields were measured along their midlines, and width between coxae II – III or at their widest point (ventral – anal, dorsal). Setae were measured from the bases of their insertions to their tips and distance between setae as the distance between their insertions. The system of setal notation for the idiosomal and the generic concept of *Asca* are based on that of Lindquist and Evans (1965). The notation used for leg setation follows that of Evans (1963). Movable cheliceral digits were measured from their basal articulation to their tips. Legs

measured from base of coxae to tips of tarsi (without pretarses). The term "pore" and "fissure" used in descriptions are applied to all pore – like structures and includes both sense organs and glands.

RESULTS AND DISCUSSION

Genus: *Asca* von Heyden

Asca von Heyden, 1826: 610. Type species *Gamasus aphidisides* Fabricius, 1805, by original designation (= *Acarus aphidioides* L., 1728) *Ceratozercon* Berlese, 1910: Type species: *Zercon bicornis* Berlese, 1887 (not *Gamasus (Sejus) bicornis* Canestrini & Fanzago, 1876) by subsequent designation (Berlese 1913) (= *Acarus aphidioides* L., 1758). Synonymy by Vitzthum (1929) cited by Halliday *et al.*, 1998: 17.

Diagnosis: Dorsal shield divided, with pair of posterior projection (horns) on opisthosomal shield usually bearing setae Z_4 and S_5 . Female with expanded ventrianal shield incorporating 5-6 pairs of ventral setae (usually Jv_{2-5} , Zv_{2-3}) in addition to circumanal setae. Genu I lacks ventral setae av_2 (and so having 12 rather than 13 setae). Third pair of sternal pores (stp_3) on the sternal shield; fourth pair of sternal setae (st_4) free on soft cuticle. Movable digit of chelicerae usually bidentate.

***Asca aegyptiaca* sp. nov.**

Diagnosis: This species is similar to *A. garmani* Hurlbutt, 1963, but differs mainly in: setae J_4 and Z_5 are slightly barbed, whearse seta J_4 coarsely barbed and seta Z_5 smooth in *A. garmani*; there is procurved ridge between setae j_5 , whearse this character is absent in *A. aegyptiaca*; fixed digit of chelicera having 7 teeth in *A. aegyptiaca*, whearse *A. garmani* has 5-6 teeth; setae ad_2 and pd_2 on tarsus IV (Fig. 9) whip-like in *A. aegyptiaca*, whearse in *A. garmani* simple.

Description: Female (Figs. 1-9) light brown, anterior dorsal shield (140-155) μm long, (133-147) μm width; bearing 17 pairs of coarsely barbed setae (j_1 - j_6 , z_2 - z_6 and s_1 - s_6) setae r_2 - r_5 inserted in soft

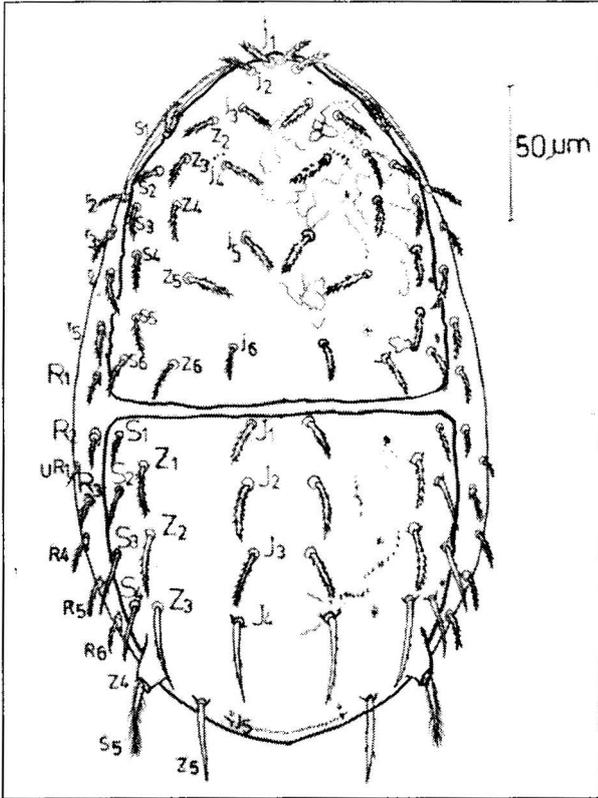


Fig.(1): *Asca aegyptiaca* sp. nov. dorsal view.

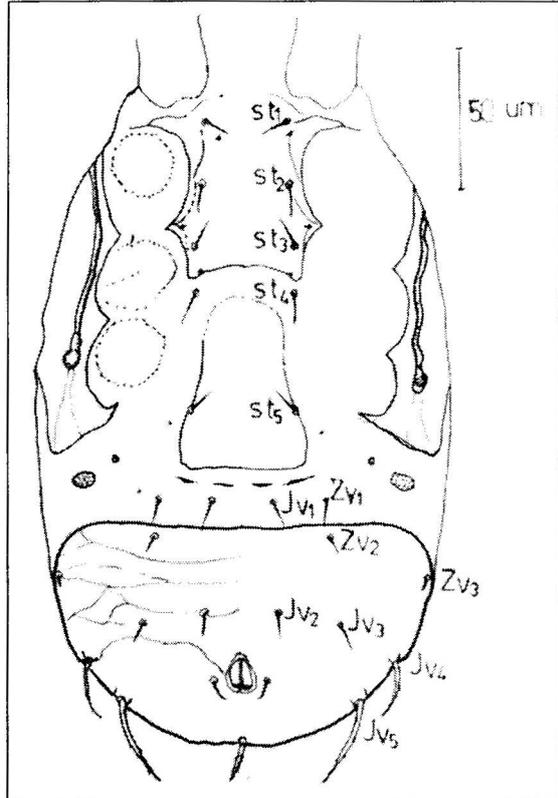
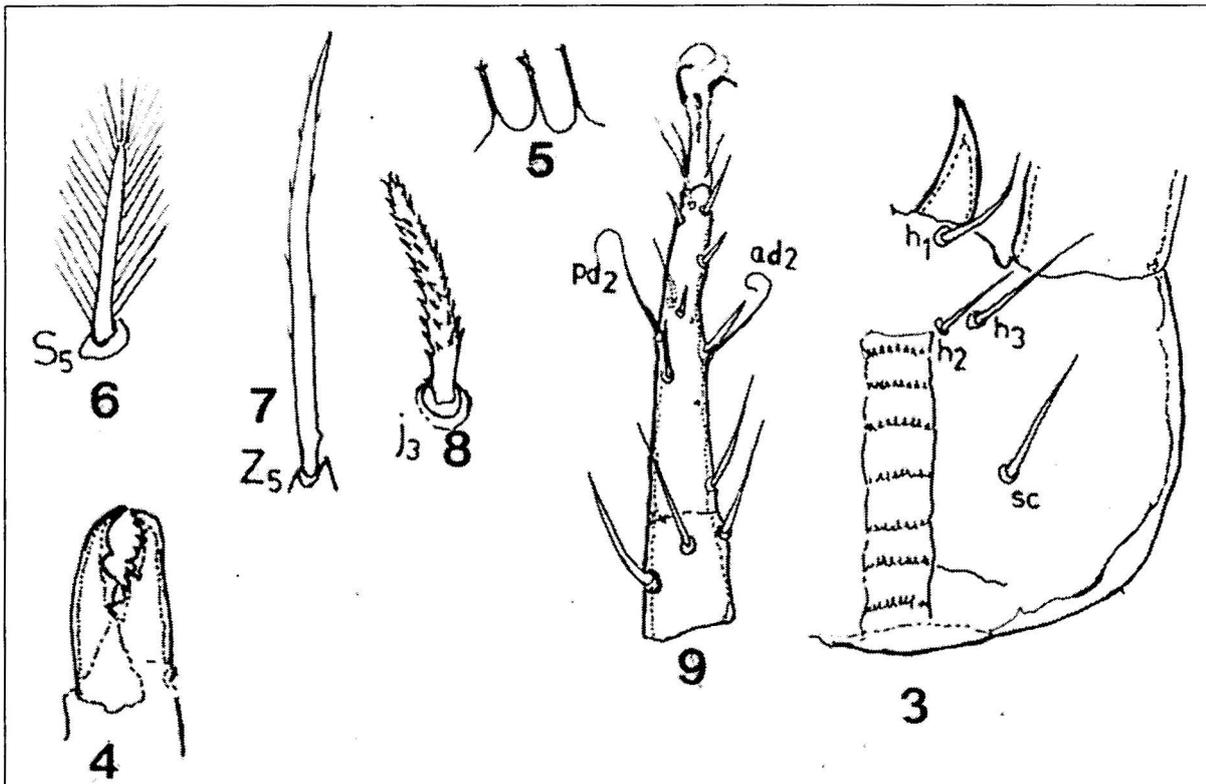


Fig.(2): *Asca aegyptiaca* sp. nov. ventral view.



Figs.(3-9): *Asca aegyptiaca* sp. nov. (3) subcapitulum (4) chelicera (5) tectum (6) seta S_5 (7) seta Z_5 (8) seta J_3 (9) tarsus.

cuticle laterally; shield generally smooth, except with scattered reticulations, and some scatter rows of minute protuberances on area between setae j_4 and z_5 ; it appears to have six pairs of pore-like structures. distributed as in Fig.1. Measurements of setae: $j_1 \cong j_2 \cong r_2 \cong r_5 = (14-18 \mu\text{m})$, $j_3 \cong j_6 \cong s_1 \cong z_4 \cong s_4 \cong s_5 \cong r_5 = (16-19 \mu\text{m})$ $j_4 - j_5 = z_5 = r_5 = s_6 = (17-20 \mu\text{m})$. Posterior dorsal shield (129 -142 μm) long (143 - 155Mm) width, smooth, except some oblique rows of minute protuberances between J series and Z; bearing 15 pairs differ in length (J_1 - J_5 , Z_1 - Z_5 and S_1 - S_5) and barbed setae; postero-lateral horns bearing pinnate conspicuous S_5 (32-35 μm) long, and minute, vestigial Z_4 ; setae J_5 minute (2-4 μm) 6 long. Setae R_1 - R_6 and UR_1 coarsely barbed, and inserted in soft cuticle laterally; length of setae $J_1 = (18-20 \mu\text{m})$, $J_2 = J_3$ (24-26 μm), J_4 (33-37 μm), Z_1 (18-23 μm) Z_2 (26-30 μm), Z_3 (35-39 μm) Z_5 (34-39 μm), S_1 (14-16 μm) S_2 (24-27 μm), S_3 (29-31 μm), R_2 (18-20 μm), $R_2 = R_3 = R_4 = R_5 = R_6$ (18-22 μm) R_1 (10-13 μm), setae J_4 , Z_3 , Z_5 , S_2 S_3 and S_4 are slightly barbed; while the remain setae are coarsely barbed. Distances between sockets of setae as: J_1 - $J_1 = J_2$ - J_2 (25-28 μm), J_2 - J_2 (26-30 μm) J_4 - $J_4 = J_4$ - Z_3 (35-28 μm); a row of dentition at the posterior end of the shield is present. Peritreme extends to level seta j_2 ; peritrematal shield fused to dorsal shield from r_2 to level of j_2 anterolaterally.

Ventral idiosoma (Fig. 2): Jugular is indistinct, bears seta st_1 , sternal shield, smooth medially, weakly sclerotized, undefined anteriorly and with slightly concave posterior margin, bearing st_2 and st_3 , having 3 pairs of pore-like structure, with oblique longitudinal lines laterally; distances of st_1 - st_2 (31-35 μm), st_2 - st_2 (33-37 μm) and st_2 - st_3 (40-45 μm) setae st_4 on soft cubical free posterolaterally of sternal shield. Metasternal shield absent. Genital shield, smooth, truncate posterior margin, bearing a pair of genital seta (st_5). Two pairs of ventral setae (Jv_1 , Zv_1) and a pair of pores in plicate soft cuticle anterior to ventrianal shield, two pairs of circular metapodal platelets, outer one larger. Ventrianal shield, with slightly concaved anterior margin, reticulated by 4 transverse rows and connected with little rows laterally, bearing 6 pairs of ventral setae (Jv_2 -.5, Zv_2 , Zv_3); setae Jv_4 and Jv_5 curved and finely barbed; postanal seta thick, barbed and longer than para-anals. Distances between sockets of some setae: st_4 - st_4 (39-45 μm) st_5 - st_5 (44-45 μm), Jv_1 - Jv_1 (24-28 μm), Zv_2 - Zv_2 (75-80 μm), Jv_3 - Jv_3 (29-33 μm), Zv_3 - Zv_3 (136-144 μm) and Jv_5 - Jv_5 (90-98 μm). Spermathecal apparatus indistinct.

Gnathosoma (Fig. 3): Movable digit of chelicerae (22-25 μm) with two large teeth while fixed digit (20-22 μm) with a row of 6-7 teeth, short, sharp setiform pilus dentilis, and subapical off-set bifid

tooth. Palp setation of trochanter- tibia (normal for the genus) 2-5-6-12; palp apotele two-tined, subcapitulum (Fig: 3) with 7 rows of 8-10 of deutosternal denticles; corniculi horn - like. curved internally with sharp tip, setae h_1 subequal to h_3 and C.s and longer than h_2 ; all simple.

Tectum (Fig. 5): Apex with 3 equal tines, each with denticulated tips. Setation of legs 1-IV: Coxae 2-2-2-1, trochanters 6-5 5-5, femora 12-10-6-6, genua 12-11-8-9, tibiae 13-10-8-10, tarsi II -IV 17-17-17; Genua III seta al_2 present, tarsus IV (Fig.9) setae ab_2 and pd_2 . flagellated (50-58 μm) long (excluding pretarsus).

Male: unknown.

Remarks: According to the concept of karg (1979). *A. aegyptiaca* sp. nov., belongs to *Asca aphidioides* species group, which characterized by: having a single large seta on each posterior horn (another minute seta is also present), minute seta J_5 , an essentially triramous apex to the tectum, and small tooth like tubercles on the posterior dorsal shield, Walter *et al.* (1993). *Asca aegyptiaca* is close to *A. garmani*, *A. afroaphidioides* Hurlbutt, 1971 and *A. aethiopica* Ryke, 1961. About the differences between *A. garmani* and the new species, is mentioned with diagnoses; while *A. afroaphidioides* differs mainly by setae S_4 , Z_5 and R series being simple, whereas in the new species, setae S_4 and Z_5 are slightly barbed and R series are coarsely barbed; *A. aethiopica* with ornamentated anterior dorsal shield, whereas in *A. aegyptiaca* this shield seems to be smooth except some scattered reticulations and some rows of minute protuberances on area between setae j_4 and z_4 , also seta J_4 sub equal to J_3 and both coarsely barbed whereas in *A. aegyptiaca* J_4 slightly barbed and longer than J_3 (coarsely barbed).

Material Examined:

Holotype: Collected from leaves of soybean (*Glycine max* (L.) on 13 October, 2014.

Paratypes: Four females, with the same data of holotype.

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