

**A New Species of *Dendrolaelaps* (Halbert, 1913)  
(Gamasida: Digamasellidae) from Egypt**

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**ABSTRACT**

The new Gamasid, *Dendrolaelaps monoufiensis* n. sp. collected from poultry manure of the Experimental farm of the Faculty of Agriculture, Shebin El-kom, Menoufia, Egypt is described and illustrated.

**Key words:** *Dendrolaelaps*, Digamasellidae, Gamasida, Egypt.

**INTRODUCTION**

The family Digamasellidae (Evans, 1957) presently contains 277 described species distributed in the following eleven genera: *Dendrolaelaps* (Halbert, 1915), *Dendrolaelaspis* (Lindquist, 1975), *Dendroseius* (Karg, 1965), *Digamasellus*, *Insectolaelaps* (Shcherbak, 1980), *Longoseius* (Chant, 1961), *Multidendrolaelaps* (Hirschmann, 1974), *Oligodentatus* (Shcherbak, 1980), *Orientolaelaps* (Bregetova and Shcherbak, 1977), *Panteniphis* (Willmann, 1949) and *Pontiolaelaps* (Luxton, 1989).

Some species are found in decaying wood, bracket fungi, in galleries of bark beetles or in association with wood-boring beetles. The known prey of Digamasellidae includes nematodes, arthropod eggs, early stages of insects or mites, springtails, and possibly fungi (Walter *et al.*, 1988 and Castilho, 2012). The family appears to have a worldwide distribution.

Digamasellid mites have been found in soil, litter, on Coleoptera or in galleries made by them in tree trunks, rodent nests, and other types of organic matter. Digamasellids are commonly mentioned in the literature as predators, which some species have been found to feed on first stages of Coleopteran, Collembolan, nematodes and mites (Moser *et al.*, 1975 and Li-Ming, 2014).

In Egypt, some studies were carried out concerning the biology and morphology of Digamasellid species (Hassan *et al.*, 1986; Metwaly and Mersal, 1985; Abou El-Naga, *et al.*, 1987 and Ahmed, 1990).

This paper includes a description of a new species of Digamasellids, *Dendrolaelaps monoufiensis* n. sp.

**MATERIALS AND METHODS**

Manure samples were collected from the Experimental poultry farm, Faculty of Agriculture, Shebin El-kom locality, Menoufia governorate,

Egypt. Mites were extracted and mounted in Hoyer's medium for microscopic examination. Descriptions were done with phase contrast (Olympus, BHA) and (Nikon, Eclipse E400) microscopes. Illustrations were made with the use of an eyepiece attached to the phase contrast microscope and measured with the use of a graded ocular for description. Notation of body setae is based on Lindquist and Evans (1965), with the modifications proposed by Lindquist (1994). Measurements are given in micrometers ( $\mu\text{m}$ ) for each structure.

***Dendrolaelaps monoufiensis* n. sp.** (Figs. 1-7)

**Diagnosis:**

Movable cheliceral digit with three teeth in addition to the apical tooth; seta s1 absent, s2, s3 and r3 are between podonotal and peritrematic shields, Z3, Z5 and S5 are longer than other dorsal idiosomal setae, S5 was slightly longer than Z3 and Z5. Adult female with anterior margin of opisthonotal shield with central U-shaped incisions, without transverse covering plates, with Jv1, Jv2, Jv3 and Zv2 on ventrianal shield, Zv1, Zv3 and Jv5 on soft cuticle off ventrianal shield.

**Description:**

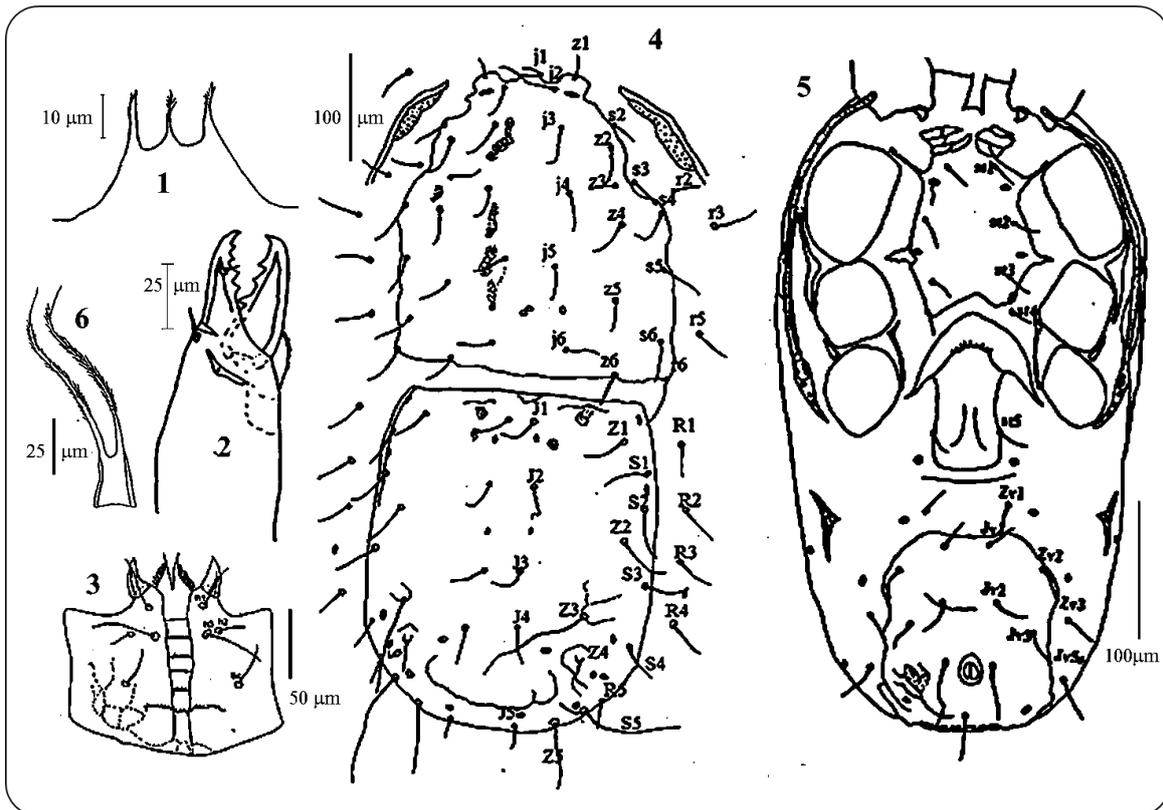
Adult female (Figs. 1-6) (Three specimens measured).

**Gnathosoma:**

Epistome with three anterior prongs, barbed distally; central prong slightly shorter than lateral prongs (Fig. 1).

Movable cheliceral digit 51(49 – 52)  $\mu\text{m}$  long and 9(8 – 10)  $\mu\text{m}$  width, with three well-spaced teeth in addition to apical tooth, the most basal teeth distinctly larger than others; fixed cheliceral digit 40(36 – 42) long, and (9)8 – 11 width, with four teeth; in addition to apical tooth and a setiform *pilusdentilis* (Fig. 2).

Corniculi horn-like, deutosternum with six roughly transverse rows (Fig. 3), anterior row smooth, rows 2 – 6 each with fine, multiple and not countable



Figs. (1-6): *Dendrolaelaps menoufiensis* n. sp. adult female: 1. Epistome, 2. Chelicera, 3. Hypostome, 4. Dorsal idiosoma, 5. Ventral idiosoma, 6. Tritosternum.

denticles; rows 6 with lateral line outside with denticles. Hypostomal setae smooth, h1 27(26–29), h2 16(13–18), h 3 35(34–36), sc 22(21–23).

#### Dorsal idiosoma (Fig. 4):

Dorsal shield divided. Podonotal shield 226(224–229) long and 242(229–255) wide, smooth; fused anterolaterally with peritrematic shield; with 17 pairs of setae (j1–j6, z1–z6, s2–s6, r2 and r5); with four scleronoduli; with one pair of distinguishable lyrifissures (posterior to z1) without pores, setae s1 and r1 absent; s2, s3 and r3 between podonotal and peritrematic shields, r4 absent in the holotype but present in two paratypes.

Opisthonotal shield 206 (203–213) long and 290(278–309) wide, smooth, with a small and light refractile structure distributed between J4 and J5, with anterior margin of opisthonotal shield with central U-shaped incisions, without transverse covering plates, with 16 pairs of setae (J1–J5, Z1–Z5, S1–S5 and R5), with one pair of pores posterior to and laterad of Z4; (R1–R4) on soft cuticle out off shield.

#### Measurements of setae:

j1 17(16–18), j2 38(36–39), j3 36(34–39), j4 29(26–31), j5 28(21–34), j6 27(23–31), z1 24(21–29), z2 32(31–34), z3 32(31–34), j4 37(34–39), z5 32(31–34), z6 35(31–39), s2 26(23–29), s3 27(18–34), s4 29(18–44), s5 40(36–44), s6 32(31–34), r2

27(23–31), r3 40 (36–42), r4 26(23–39), r5 23(21–24), r6 23(34–32), r6 37(34–42), J1 30 (29–31), J2 27 (23–29), J3 23 (21–24), J4 25 (23–26), J5 14 (10–16), Z1 37 (36–39), Z2 36(34–39), Z3 78(75–81), Z4 29(28–31), Z5 70(68–73), S1 36(34–37), S2 35(31–36), S3 25(21–29), S4 29(26–34), S5 83(75–91), R1 23(21–26), R2 30(29–31), R3 27(26–29), R4 24(23–26), R5 24(23–26).

#### Ventral idiosoma (Fig. 5):

Base of tritosternum 26(21–31) long and 11(10–13) wide, laciniae 61(60–62) long, separated for about 70% of their total length (Fig.6), Sternal shield 131 (125–135) long and 145(143–146) wide, weakly sclerotised and smooth; anterior and posterior margin concave; with four pairs of setae and three pairs of lyrifissures (iv1 posterior to st1, iv2 anterior to lateral protrusion at level between coxae II–III and iv3 anterior to st4). Genital shield 89(75–99) long and 68(62–73) wide, weakly sclerotised and smooth; with a pair of setae (st5); contracted posterior to st5, anterior margin convex and posterior margin straight, distance between st5–st5 60(57–62). Soft cuticle posterolaterad of st5 with a pair of lyrifissures. Ventrianal shield large, subrectangular 167(164–172) long and 153(151–156) wide, anterior margin slightly convex and bulged anterior to Zv2, and posteriorly fused to opisthonotal shield; with four pairs of setae (Jv1–Jv3 and Zv2) in addition to circum-anal setae; with one pairs of setae, para-anal setae at level

slightly anterior to median of anus, Zv1, Zv3 and Zv5 on soft cuticle out off shield, with three pairs of lyrifissures (posterior to and laterad of Zv1, posterior to and laterad of Zv2 and anterior to and laterad of Jv5). Metapodal plates elongated. A pair of lyrifissures laterad of metapodal plates.

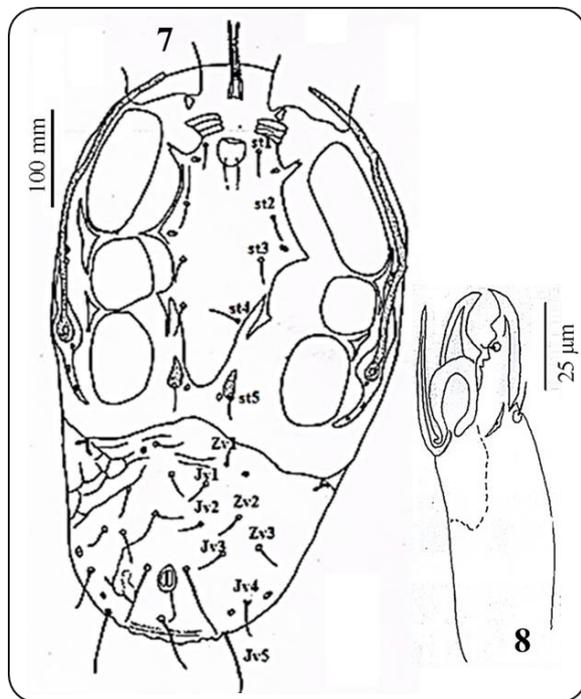
#### Peritrematic plate and peritreme (Figs. 4-5):

Peritreme extends anteriorly to level of j2. Peritrematic shield fused anteriorly with podonotal shield and sharp-ended posterior to stigma; Exopodal shields fragmented in two parts: between coxa II and III and between coxa III and IV. Measurements of setae: st1 22(21–23), st2 22(21–23), st3 22(21–23), st4 22(21–23), st5 20(18–21), Jv1 23(21–26), Jv2 24(23–26), Jv3 23(16–26), Jv5 33(31–36), Zv1 26(23–29), Zv2 23(16–31), Zv3 23(18–29), para-anal 44 (39–47), post-anal 39 (34–42); all setae aciculate and smooth.

**Spermatheca:** Not distinguishable.

**Legs:** Lengths excluding pretarsi: leg I 445(426–463), leg II 321(294–335), leg III 279(255–312), leg IV 393(369–407).

**Adult male (Figs. 7– 8):** Five specimens measured.



Figs. (7-8): *Dendrolaelaps menoufiensis* n. sp. adult male: 7. Ventral idiosoma, 8. Chelicera.

#### Gnathosoma:

Fixed cheliceral digit 32(31–34) long and 15(10–21) width, with four similarly short teeth in addition to apical tooth and setiform *pilus dentilis* (Fig. 7); movable digit 39 (36–42) long and 12(10–16) width,

with one large teeth in addition to apical tooth, spermatodactyl sickle shaped, as long as movable cheliceral digit, apparently with an internal canal in proximal half and tapering slightly distally, dorsal cheliceral seta inflated, epistome, deutosternum and position of hypostomal setae as in adult female. Measurements of setae: h 1 31(29 – 32), h 2 17(15–19), h 3 32(29 – 32), sc 23(21– 26).

#### Dorsal idiosoma:

Podonotal shield 236 (200–265) long and 239 (224–252) wide at widest level; opisthonotal shield 219 (200–239) long and 220 (190–237) wide at widest level; other characteristics similar to those of adult female. Measurements of setae: j1 16(10 – 21), j2 34(29–42), j3 35(23–49), j4 32(23–49), j5 27( 17–42), j6 29(21–42), z1 22(16–31), z2 29(26–34), z3 32(29–36), z4 35(31–42), z5 29(26–31), z6 35(23–44), s2 21(18–23), s3 31(23–42), s4 36(29–44), s5 29(23–34), s6 36(29–47), r2 26(23–29), r3 35 (29–39), r4 20(16–26), r5 28(23–34), r6 40(36–47), J1 29 (26–34), J2 37 (31–42), J3 22 (16–26), J4 21 (18–23), J5 11 (8–13), Z1 41 (36–47), Z2 41(34–47), Z3 93(86–104), Z4 27(23–31), Z5 61(57–68), S1 36(29–44), S2 43(34–49), S3 39(34–47), S4 29(21–36), S5 93(31–109), R1 21(18–23), R2 20(18–23), R3 18(16–23), R4 22(16–31), R5 13(8–16).

#### Ventral idiosoma (Fig. 7):

Base of tritosternum 21(16–23) long, and 11(10–13) wide proximally; laciniae 44(34–49), separated for about 68% of their total length. Sternogenital shield 239(218–260) long and 160(133–226) wide, smooth; with four pairs of setae (st1–st4) and three pairs of lyrifissures (iv1 posterior to st1, iv2 anterior to lateral protrusion at level of between coxae II–III, and iv3 anterior to st4); anterior margins are striped , Seta st5 on a punctate on unsclerotised cuticle posterolaterad of sternogenital shield. Ventrianal shield 195(174–213) long and 210(195–224), reticulated; anterior margin with concaved incisions; fused laterally and posteriorly with opisthonotal shield; with seven pairs of setae (Jv1–Jv5 and Zv1–Zv3) in addition to circum-anal setae and with three pairs of lyrifissures.

#### Peritrematic plate and peritreme (Figs. 4-5):

Peritrematic shield fused anteriorly with podonotal shield and sharp. Exopodal shields fragmented in two parts with one lyrifissure and one pore between coxae II and III in addition to a pair of lyrifissures and one pore on the ended posterior to stigma.

#### Measurements of setae:

st1 21(16–23), st2 21(17–24), st3 22(18–29), st4 17(16–21), st5 22(16–26), Jv1 19(17–21), Jv2 23(18–29), Jv3 23(18–29), Jv4 26(21–36), Jv5 51(30–63),

Zv1 17(13–21), Zv2 24(16–29), Zv3 22(18–26), para-anal 42 (36–47), post-anal 36(29–39); all setae aciculate and smooth.

#### Legs:

Lengths excluding pretarsi: leg I 466(442–502), leg II 384(330–432), leg III 313(273–335), leg IV 394(364–411).

#### Material examined:

Holotype and Paratypes of adult females and males were found on poultry manure, animal farm of the Faculty of Agriculture, Shebin El-kom, Menoufia University, Egypt.

#### Etymology:

The scientific nomenclature of the new species *monoufiensis* is derived from Menoufia governorate, Egypt (where the type specimens were collected and identified) + ensis is a suffix means belonging to.

#### Remarks:

*Dendrolaelaps monoufiensis* n. sp. is most similar to *Dendrolaelaps sayedi* (Hassan Afifi and Nawar), *Dendrolaelaps aegyptiacus* (Metwaly and Mersal) and *D. linjianzheni* (Li-Ming Ma. ), but differs in having 17 pairs of setae on podonotal shield (18 in *D. sayedi*, *D. aegyptiacus* and *D. linjianzheni*); length of Jv5; numbers of sclerodoni (4) as mentioned and illustrated two pairs in *D. sayedi*.

This species has one pair of lyrifisures (two pairs on *D. linjianzheni*), s1 absent (present in *D. linjianzheni*), r6 present (r6 absent in *D. linjianzheni*).

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