A New Species of *Molothrognathus* Summers and Schlinger (Prostigmata: Caligonellidae) from Saudi Arabia

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ABSTRACT

A new species *Molothrognathus saudiensis* n. sp. from the family Caligonellidae Grandjean is described and illustrated. This family is recorded for the first time in Saudi Arabia. The new species was found inside tumors formed on the bark of timber trees (*Tamarix aphylla*). The Morphological characters of *Molothrognathus saudiensis* n. sp. are given.

Key Words: *Molothrognathus saudiensis* n. sp., Caligonellidae, Predacious mite, Timber trees, Saudi Arabia.

INTRODUCTION

Three families (Raphignathidae, Stigmaeidae, Eupalopsellidae) of the 11 families known in the superfamily Raphignathoidea were previously recorded in Saudi Arabia (Dabbour & Abdel-Aziz, 1982). Consequently, the fourth family, Caligonellidae, has been recorded in this study for the first time. This family was discovered and distinguished based on fusion forming a distinctive stylophore by Grandjean (1944). Members of this family are free- living predatory mites (Kethley, 1990).

The peritremal arrangement and configuration on the dorsal surface of the stylophore are used to separate the genera (Summers& Schlinger, 1955 and Swift, 1994).The genus *Molothrognathus* was erected by Summers and Schlinger (1955) based on characters of *Molothrognathus leptostylus* Summers & Schlinger, *M. flugidus* Summers & Schlinger, and *M. crusis* Summers & Schlinger. Fourteen species were recorded worldwide with an identification key by Laing & Zhang (1997). In the same year, one more species (*M. artvinensis*) was described in Turkey by Kock and Ayyildiz (1997). However, the five species were recorded before 1997 but, not included within the key mentioned above; two of them (*M.seusius* Soliman & Gomaa, 1986 and *M. platelettus* Soliman & Gomaa, 1986) in Egypt (Zaher, 1986) other two species (*M. Washingtonia* described by McGregor (1959) and *M. mosey* described by Smiley & Moser (1968)) in California while one species (*M. citrivallis* Meyer and Uckermann, 1989) were recorded in South Africa Recently, two species (*M bahariensis, M. azizi*) have been described from Iran by Ueckermann and Khanjani (2003).

From previous studies and species mentioned above only 22 species of *Molothrognathus* were described and recorded worldwide. The present paper describes a new species from Saudi Arabia.

MATERIALS AND METHODS

The specimens were collected from tumors formed on the bark of timber trees (*Tamarix aphylla*) located in Riyadh region. Mites were extracted by using a pointed forceps under a high quality Olympus stereo-microscope (SZX-10) at magnifications 100-200X.

Collected mites were cleared in "Nesbitt's" solution for 10-12 hours, mounted onto micro-slides with Hoyer's medium, and later dried at 40°C for one week. An Olympus compound microscope (BX-51) with an attached drawing tube was used for examination and initial pencil drawing of mite diagnostic features at magnifications of 400-1200X was set up. The line drawings of mites were scanned and imported into Adobe Photoshop and used as templates for final illustrations in Adobe illustrator. The figure measurement lines were fixed at 25 micrometer (μm).

The terminology and notation used in this paper are found in Swift (1996) Idiosoma length was measured from the anterior margin of propodosoma to the posterior margin of the opisthosoma; width was measured at the humeral sulcus. Gnathosomal length was measured from cheliceral base to tip of palpus and leg length from segmental suture between coxa and trochanter to distal tip of tarsal claws.

Collection data: Two holotypes are deposited in the King Saud University Museum of Arthropods (KSMA), College of Food and Agriculture Sciences, King Saud University. Two paratypes are deposited in the Fruit Acarology Department (FAD), Plant Protection Research Institute (PPRI), Agricultural Research Center (ARC).

Male: Unknown.

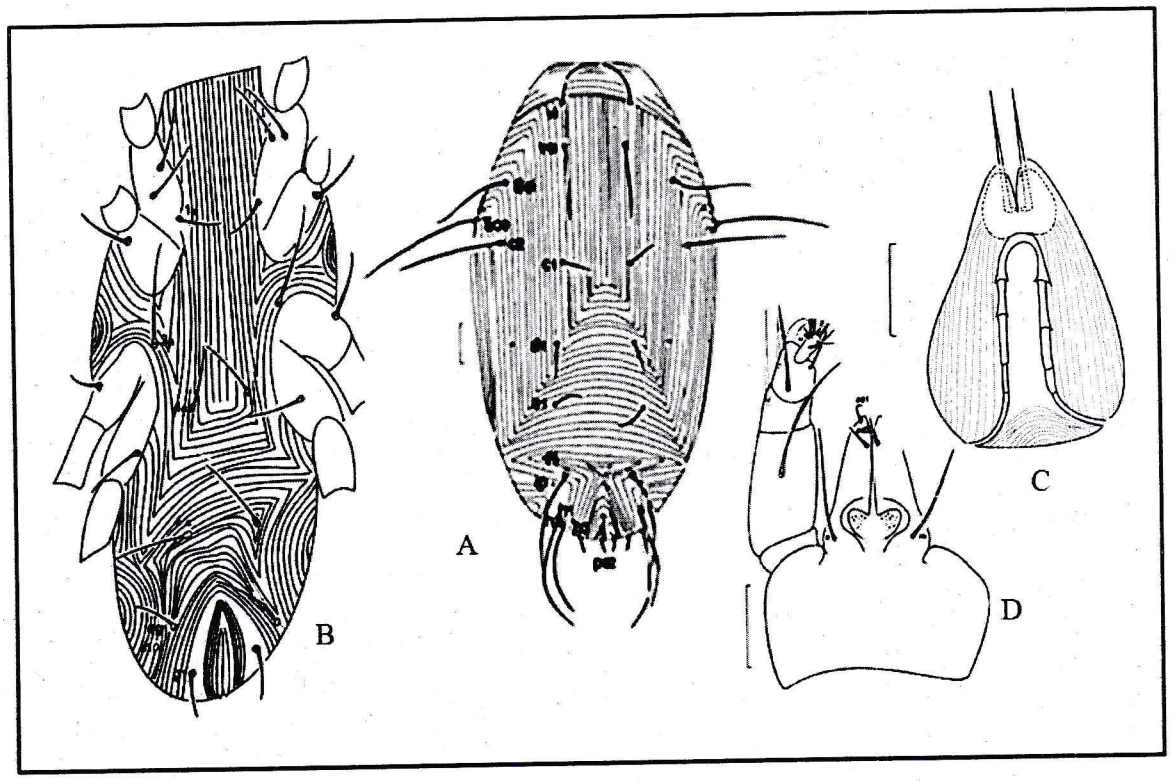

Fig.(1): *Molothrognathus saudiensis* n. sp.,(A)Dorsal view,(B)Ventral view,(C) Gnathosoma dorsum , (D) Gnathosoma ventrum.

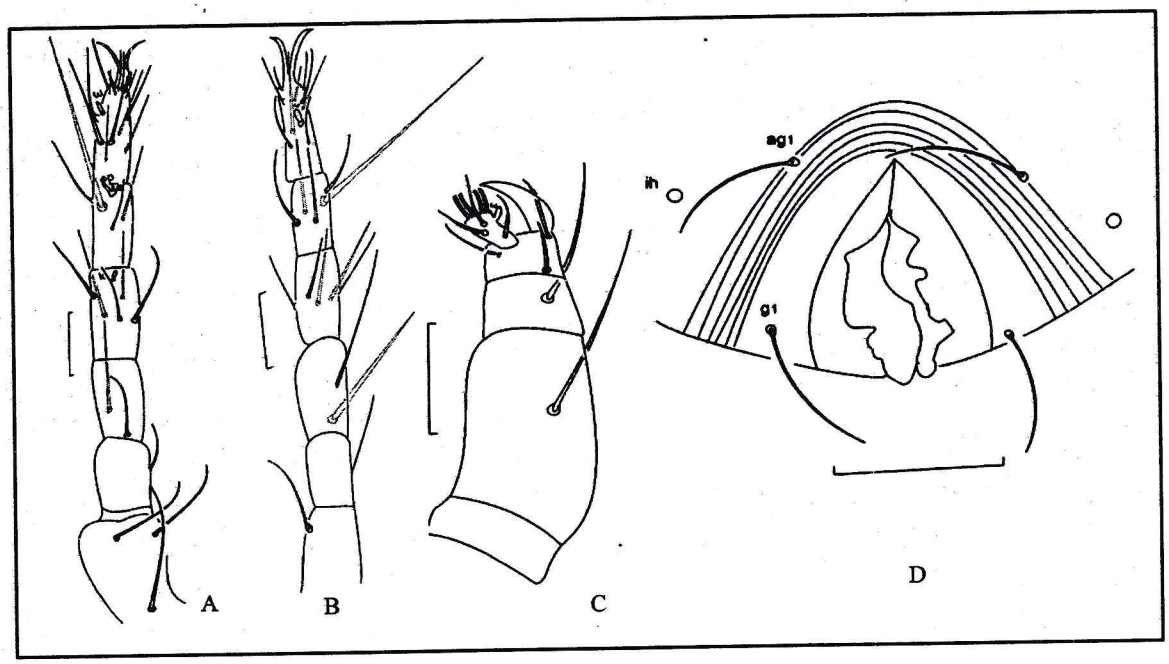

Fig.(2): *Molothrognathus saudiensis* n. sp.,(A) Leg I, (B) Leg II, (C) Palp, (D) Opisthosoma.

RESULTS AND DISCUSSION

***Molothrognathus saudiensis* sp. nov.** (Figs.1, 2)

Diagnosis: *M. saudiensis* n. sp. is related to *M. colei* Swift, 1996 but, distinguished from *it* by the absence of the propodosomal plate and number of setae on tarsi I- IV:(16+1 ω) - (9+1ω)-8-8; (15+1 ω) (10+1ω)-9-9 in *M.colei*); relatively long dorsal setae *ve* (50-60, 31-36 in *M.colei*), *Sci* (53-59, 29-36 in *M.colei*), c_1 (15-18, 21-26 in *M.colei*), d_1 (16-18, 21-25 in *M.colei*), e_1 (20-25, 32-35 in *M.colei*), f_1 (79-89, 70-71 in *M.colei*) h_1 (76-89; 67-74 in *M. colei*). Moreover, setae ad_1 hook like; while very weak bending in *M. colei.* Also, this species can be distinguished by the presence of very long setae extending to the end of tarsus on tibiae I-IV and such character not appear in *M. colei.*

Female: Ranges of holotype and 9 female specimens in parentheses. Colour in life: orange; length 335 (298- 335); width 190(178- 198).

Gnathosoma: (Fig.2 C& D).Length 141(132- 145). Stylophore deeply cleft anteriorly at midline; peritreme with 8-10 irregularly divided segments; number of setae from palpfemur to palptarsus 1-1-3-(7+1ω); 4 terminal eupathidia (each with rounded tip); 1 pair of subcapitular setae present (*m*); palptibial claw 18; 2 pairs of dorsal setae (ad_1, ad_2) present

Dorsum: (Fig.1A). Oval shape; striation pattern as in figure; 2 pairs of eyes; propodosomal plate absent; 11 pairs of simple setae present; 3 pairs of integumental cupules present , *ia* behind posterior eye , *im* anterolaterad of d_1 and *ip* anterolaterad of f_1. Anal valves each with 2 *ps* setae, ps_3 absent. Length of setae: *vi* 29 (22- 31); *ve* 55 (50-60); *sci* 56(53- 59); *sce* 105(96-108); c_2 91(84-95); c_1 17(15-18); d_1 17(16-18); e_1 23(20-25); f_1 84(79-89); h_1 85(76-89); h_2 82(79-83); h_3 14(12-15).

Venter:(Fig.1B). Sriation as figured; one pair of genital setae posterior of genital plates; cupules *ih* laterad in between setae ag_1 and g_1.

Legs: (Figs.2, A& B). Length of legs I-IV: I 200(198- 213), II 165(163-173), III 200(198-215), IV 215(197- 217). Number of setae on leg segments I-IV: tarsi (16+1ω)-(9+1ω) - 8-8; tibiae (5+1φ+1φp) -5-4-4; genua (5+1k)- 5-2-2; femorae 2-2-2-2; trochanters 1-1-1-1; coxae 3-1-1-1. solenidia φ, φp a common alvluseo with length φ 2(2-3), φp7 (6-7) on tibia I; empodium as figured.

Male: Unknown.

Specimens Examined: Holotype: female. RIYADH: 21.XII.2011, ex *Tamarix aphylla,* A. Al-GHunaim, collector. (10females).

Remarks: This species inhabits inside the tumors formed on the bark of timber trees (*Tamarix aphylla*). Also, another three mite species recorded in the same habitat at the same time namely, *Decaphyllobius gersoni* Bolland, *Hemicheyletia bakeri* (Ehara) as predator and tenuipalpid mite *Obdulia sp.* as phytophagus mite.

Etymology: *M. saudiensis* n. sp. is derived from the country name (Kingdom of Saudi Arabia).

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