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A NEW GENUS AND SPECIES OF MITE (ACARI: PODAPOLIPIDAE) ASSOCIATED WITH THE LOCUST, *PATANGA SUCCINCTA* LINNÉ (ORTHOPTERA: ACRIDIDAE)

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Paul Kang-Chen Lo (1990) A new genus and species of mite (Acari: Podapolipidae) associated with the locust, *Patanga succincta* Linné. *Bull. Inst. Zool., Academia Sinica* 29(2): 89-93. *Locustipolipus patangae* n. sp. is described and illustrated. This ectoparasitic mite was first found in Penghu, Taiwan on mid, hind thoraxes and around the bases of fore and hind wings of the locust, *Patanga succincta* L. in January, 1979. When the mites on the thoraxes becoming crowed, they will migrate to attach on the dorsal abdomenal segments and genitalia.

Key words: *Locustipolipus patangae* n. sp., *Patanga succincta* L.

Locustipolipus patangae, a parasitic podapolipid mite was first found in Penghu, Taiwan on the locust, *Patanga succincta* Linné in January, 1979. The percentage of parasitism was generally 60-100%, but it was recorded once as low as 29% in December, 1988. The percentage of parasitism on male locusts was 4 times higher than that on female locusts.

Many podapolipid mites were collected from the basal portions of both fore and hind wings, dorsal mid and hind thoraxes, proximal segments of abdomen and genitalia, apparently, these mites are transmitted by mode of venereal transmission.

Not only *Patanga succincta* was the major host of *L. patangae*, but a smaller locust, *Oedaleus* sp. was also parasitized by this mite. The locust hosts of the mite parasite was not very specific. Accordingly, the percentage of parasitism was very low (less than 10%) on the smaller locust. Apparently, this new ectoparasitic mite has preference for *P. succincta*.

MATERIALS AND METHODS

All types of mite specimens were collected from Penghu on *Patanga succincta* L. and *Oedaleus* sp. The specimens were mounted by Hoyer's medium. Most of type specimens are deposited at the Museum of Taiwan Agricultural Research Institute, Taichung, Taiwan, R.O.C. One female, 1 male and 1 larviform female are deposited in the U.S. National Museum Collections, Beltsville, Maryland, USA.

Measurements were taken with the aid of a Wild phase contrast microscope with a drawing tube calibrated with a stage micrometer. All measurements are in micron. Terminology in this paper is

based on that used by Husband (1974, 1984, 1986) and Husband and Sinha (1970).

RESULTS

Description of new genus: *Locustipolipus*, New genus

Type-species: *Locustipolipus patangae*, n. sp. (by monotype)

Diagnosis: This genus differs from all other genera in the family by having a modified bifurcate tibiotarsus II. It is most clearly related to *Locustacarus* Ewing, 1924 by possessing non-bifurcate lobes anteriorly on the dorsal propodosoma. Gnathosoma of larviform female broad; male gnathosoma narrow, ca. 1/5 width of idiosoma; chelicerae of larviform female very long, needle-like, their bases extending to anterolateral margins of gnathosoma, adult female with harpoon-like chelicerae reduced and with very short, reduced palps substituted in larviform female with a pair of setae, paired setae absent in adult male and female.

Propodosoma of larviform female and male with 3 pairs of setae, dorsocentral part of male with a long aedeagus. Three pairs of opisthosomal setae in larviform female; only one pair of opisthosomal setae in male; larviform female with terminal caudal setae of longer than the body length; with a pair of short accessory caudal setae near the base of long caudal setae. Larviform male and female with 3 pairs of legs, legs not as long as width of idiosoma; adult female with 1 pair of legs and 1 pair of modified legs, each with spurs and a terminal strong hook, femur with a single seta; modified legs very strong and forked terminally, segmentation indistinct, only terminal parts with many tiny spines.

Description of new species

Locustipolipus patangae, new species

Holotype: Male, Penghu, Taiwan, 4-II-1989, from the basal portion of fore wing of *Patanga succincta* Linné (Acrididae: Orthoptera), collected by the author himself. Deposited in the Museum of Taiwan Agricultural Research Institute, Taichung, Taiwan, The Republic of China.

Paratype: Two females, 3 larviform females, Penghu, Taiwan, 29-XI-1988, same host data as the holotype; 1 female, 1 male and 1 larviform female, Penghu, Taiwan, 4-II-1989, from the dorsal hind thorax of *Oedaleus* sp.; 45 females, 5 males and 19 larviform females, same data as the holotype. They are deposited in the Museum of Taiwan Agricultural Research Institute, Taichung, Taiwan, The Republic of China. One female, 1 male and 1 larviform female with the same data as the holotype are deposited in the U.S. National Museum Collections, Beltsville, Maryland, USA.

Description

Adult female (Fig. 1)—Gnathosoma longer (67.1 μ) than wide (55.9 μ), lightly sclerotized, chelicerae heavily sclerotized, harpoon-like, with wide proximal bases, length of extended chelicerae about 1/2 length of gnathosoma (25.6 μ); palps reduced. Stigmata situated in process lateral to gnathosoma. Trachea present, extending into anterior hysterosoma. Pharyngeal pump apparent in most specimens. Idiosoma egg shaped, longer (535.1 μ) than wide (510.5 μ), the ratio about 8:7, dorsal surface of idiosoma smooth. Genital opening inconspicuous. Female adult may expand to three times length and 4 times width of larviform female. With two pairs of legs, leg II larger than leg I, leg I with 6 segments, tarsus with a lateral spine; terminating with a strong hook-like claw. Leg II segmentation indistinct and fused; tibiotarsus II modified, strong, and forked terminally, with 3-4 small lateral spines on each side.

Larviform male (Fig. 2)—Gnathosoma wider (27.2 μ) than long (25.6 μ), without

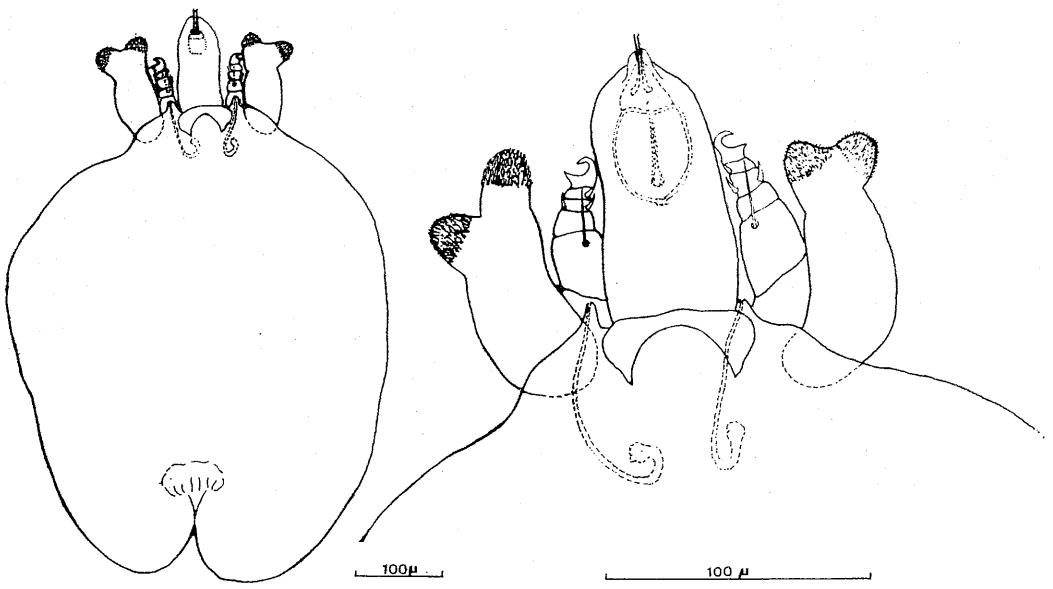

Fig. 1. *Locustipolipus patangae*, n. g., n. sp.—Adult female, dorsal aspect (left), enlarged gnathosoma, legs, pseudo-legs and peritreme (right).

dorsal setae, ventral gnathosoma with one pair of setae. Palps reduced. Chelicerae slightly developed, bases not extend to lateral margins of pharyngeal pump, only 6.4 μ in length. Propodosoma with 3 pairs of dorsal setae, 1st pair or v. i. (3.2 μ) and 2nd pair or v. e. (3.8 μ) similar in length, 3rd pair or sc. e. (26.1 μ) more than twice length of setae v. i. and v. e.. Metapodosoma with aedeagus

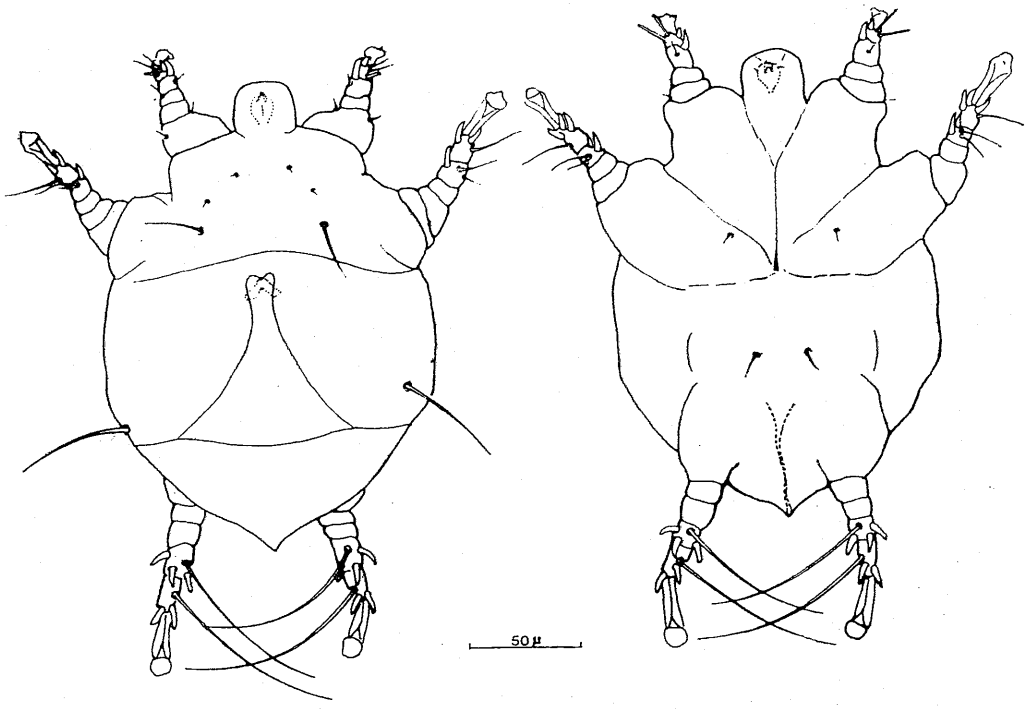

Fig. 2. *Locustipolipus patangae*, n. g., n. sp.—Male, dorsal aspect (left), ventral aspect (right).

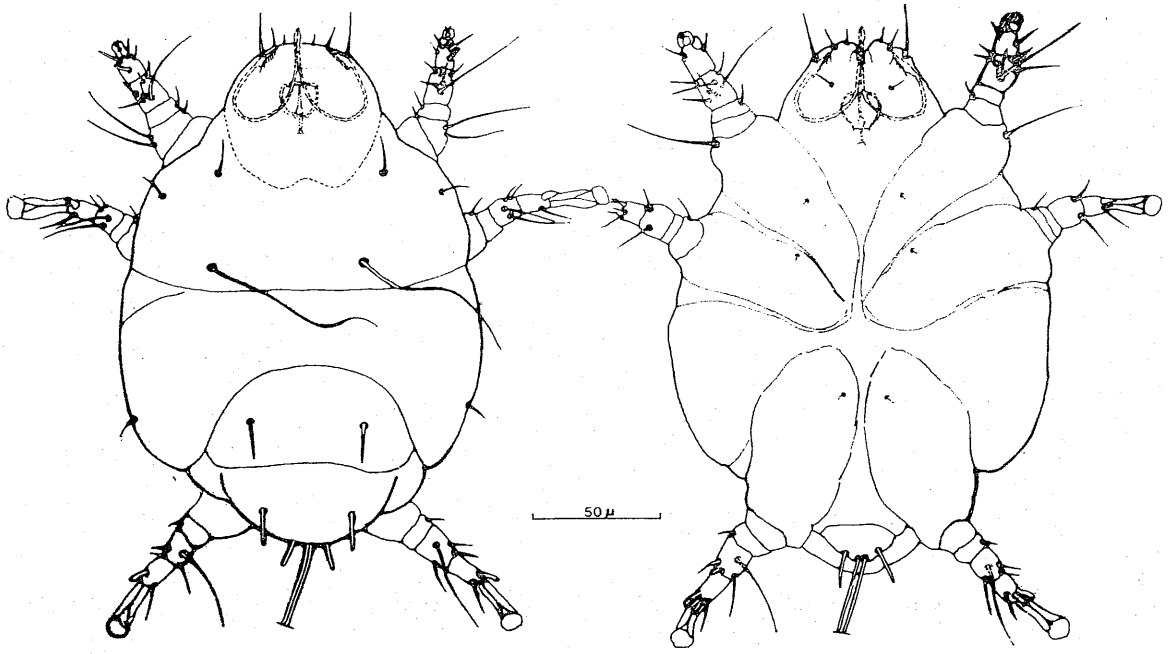

Fig. 3. *Locustipolipus patangae*, n. g., n. sp.—Larviform female, dorsal aspect (left), ventral aspect (right).

middorsally; orifice at the anterior portion of shield. Shield 76.7 μ long by 12.8 μ wide, with one pair of setae on posterolaterally. Opisthosoma without plate or seta. Coxal plates fused medially, coxal plates I without setae; coxal plates II each with a short seta. Legs shorter than width of idiosoma; chaetotaxy on femur, genu, tibia and tarsus I: 2-0-1, 2 spurs-2, 1 spur, 1 solenidion-uncinated claw; leg II: 0-0-2, 1 spur-1, 2 spurs, claw absent; leg III: 0-0-1, 3 spurs-1, 2 spurs, claw absent. Body 218.7 μ long by 153.7 μ wide.

Larviform female (Fig. 3)—Gnathosoma spherical, wider (62.3 μ) than long (55.6 μ), with a pair of ventral setae and 2 pairs of apical setae; palps reduced, only substitute a pair of setae, longer than the ventral and apical setae. Chelicerae very long (93.5 μ), bases extend to anterolateral margins of gnathosoma, apex of chelicerae heavily sclerotized, harpoon-like. Propodosomal plate nearly oblong, with 3 pairs of setae: v. i. 15.9 μ, v. e. 12.7 μ, se. e. 72.9 μ, the third pair much longer than the prior two pairs, and longer than 1/2 width of idiosoma. Metapodosoma separated by a suture, subdivided into two parts, each with a pair of setae: h. e. 9.5 μ, s. d. 21.2 μ. Opisthosomal plate oval, with three pairs of setae. Terminal caudal setae longer than the body length (304.1 μ) and with one pair of short accessory caudal setae (18.5 μ) near the bases of the long caudal setae, s. sa. 19.1 μ. Coxal plates I and II separated from III by non-sclerotized integument, coxal plates fused medially, each coxal plate with a tiny seta. Three pairs of legs, shorter than width of idiosoma, chaetotaxy on femur, genu, tibia and tarsus I: 3-1-6-4, 1 spur, 1 solenidion, 2 claws; leg II: 1-0-4-2, 1 spur, claw absent; leg III: 0-1-4-1, 1 spur, 1 forked spur, claw absent. Body 202.9 μ long by 145.8 μ wide.

Distribution: Penghu, Taiwan.

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外寄生條背土蝗 (*Patanga succincta* Linné) 之囊蠕 (Acari: Podapolipidae)一新屬一新種

羅 幹 成

一種囊蠕於 1979 年首先發現於臺灣澎湖，寄生於條背土蝗，此蠕外寄生於蝗蟲之中、後胸背板及前後翅之基部，當寄生密度太高時，可遷移至腹部背板，甚至轉移至外生殖器之縫隙間，經鑑定爲一新屬一新種：*Locustipolipus patangae*。