A new species of *Aponychus* from Taiwan and a redescription of *A. corpuzae* (Acariformes: Tetranychidae)

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(Accepted for publication: Oct., 11, 2003)

ABSTRACT

Ho, C. C.* 2003. A new species of *Aponychus* from Taiwan and a redescription of *A. corpuzae* (Acariformes: Tetranychidae). Plant Prot. Bull. 45: 343 – 351

Aponychus mallotus n. sp. was collected from *Mallotus paniculatus* (Lam.) Muell. Arg. in central Taiwan. *Aponychus corpuzae* Rimando collected from bamboo is redescribed with measurements on dorsal setal length and leg chaetotaxy observed by this author.

(Key words: Tetranychidae, *Aponychus*, new species, redescription)

INTRODUCTION

Nineteen *Aponychus* species have been recorded worldwide[2]. Only 2 have been recorded from Taiwan[8]. An *Aponychus* mite was collected on *Mallotus paniculatus* (Lam.) Muell. Arg., from 2 mountain areas in central Taiwan. The dorsal setae of this mite are stout and densely barbed, and grow on strong tubercles. However, it differs from all known *Aponychus* species either by the dorsal chaetotaxy or leg chaetotaxy, and is described in this paper. *Aponychus corpuzae* Rimando was described from Taiwan with a full illustration by Tseng[8]. *A corpuzae* was also collected by this author. The leg chaetotaxy observed differs from that described by Ehara[4], Wang[9], Ma *et al*.[6], and Tseng[8]. It is, therefore, also described herein with the addition of measurements on setal length. All measurements are in micrometers (μm). The average and range, in parenthesis, of measurements are given.

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DESCRIPTION

Aponychus mallotus n. sp. (Figs. 1, 2)

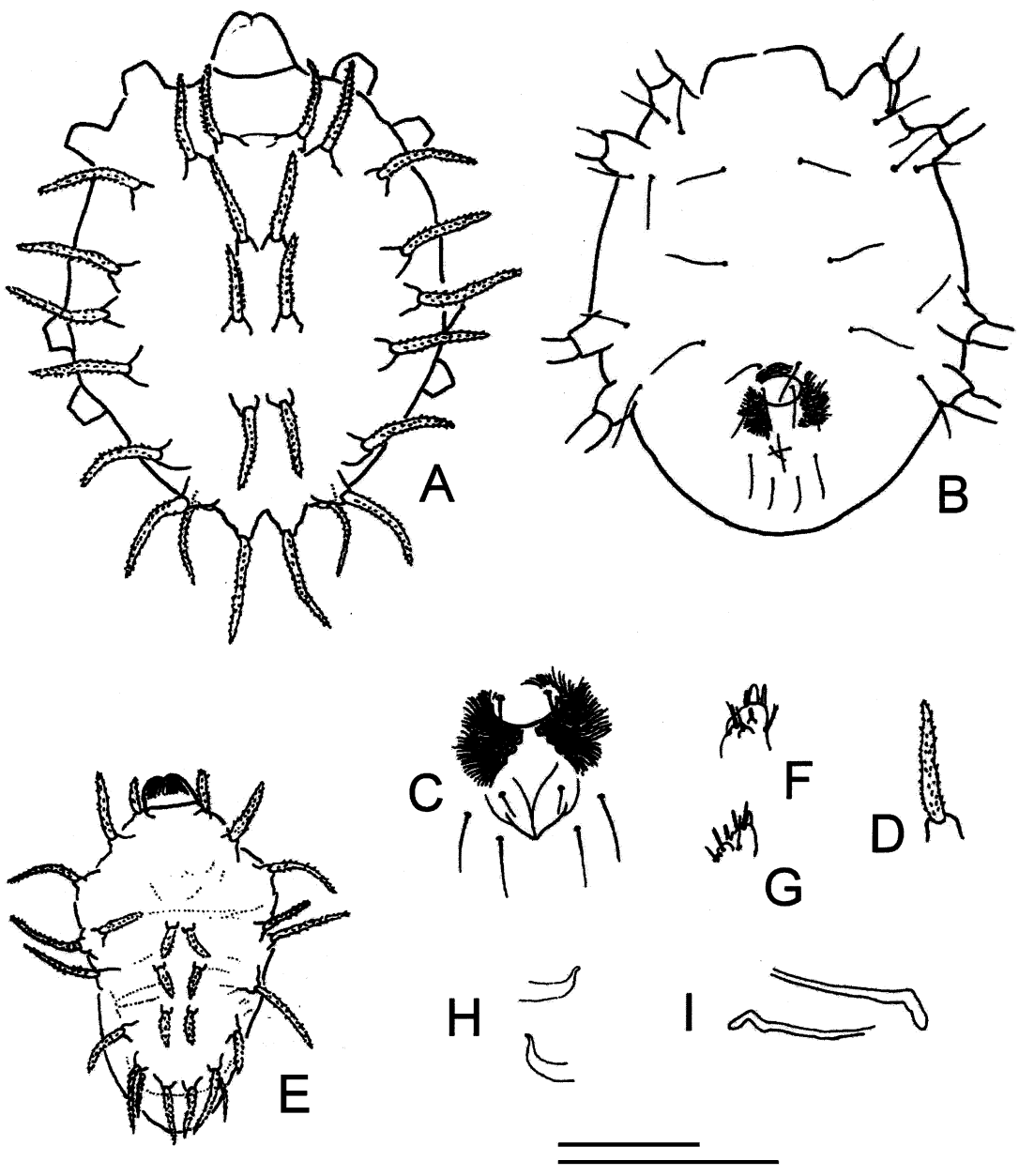


Fig. 1. *Aponychus mallotus* n. sp. A. female, dorsal view, B. female, ventral view, C. genitoanal area of female, D. dorsal seta, E. male, dorsal view, F. palptarsus of female, G. palptarsus of male, H. aedeagus, I. peritreme. Shortest bar represents 100 μ for A, B, and E, shorter bar represents 100 μ for C and D, longest bar represents 50 μ for F-I.

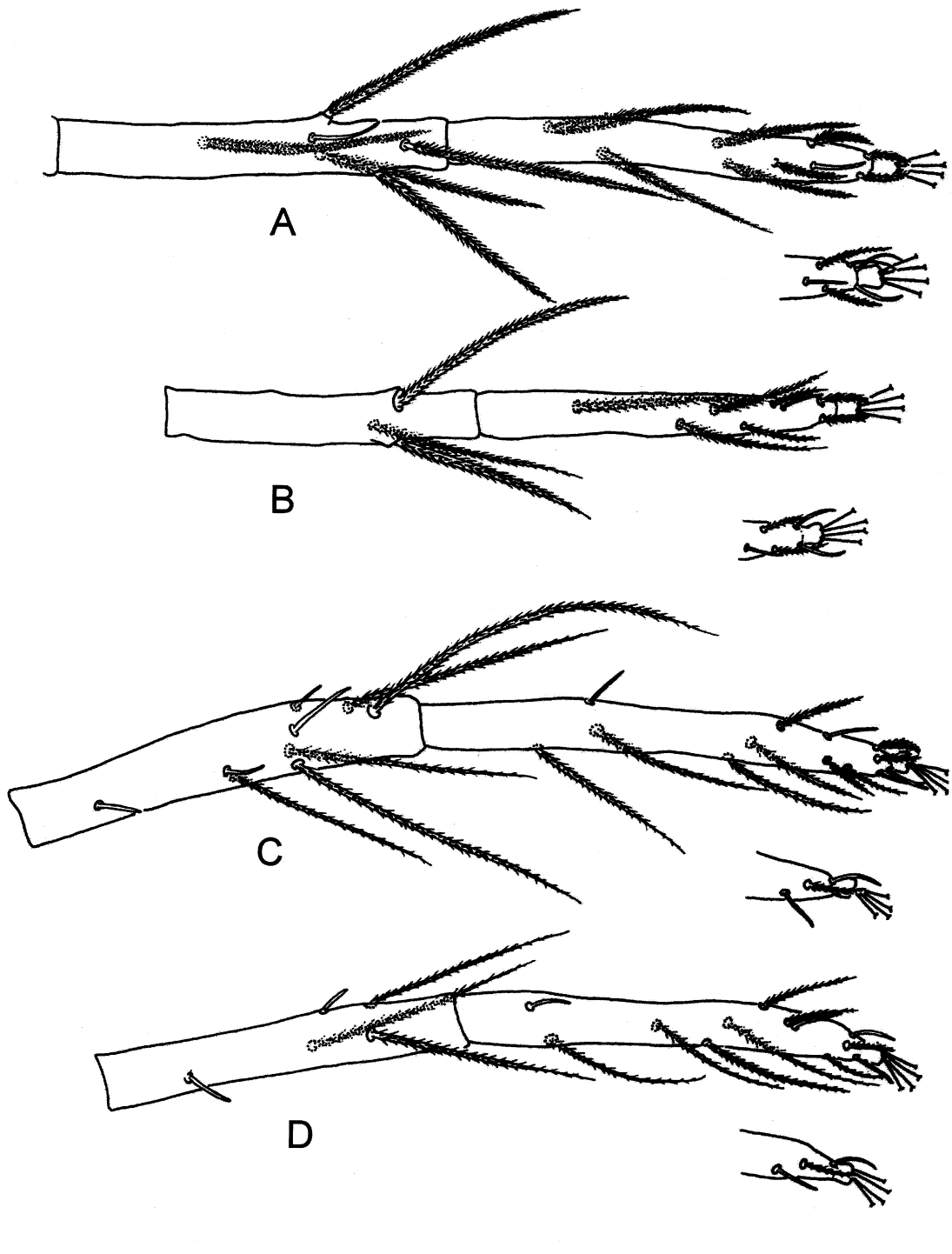


Fig. 2. *Aponychus mallotus* n. sp. A. tarsus I and tibia I of female, B. tarsus II and tibia II of female, C. tarsus I and tibia I of male, D. tarsus II and tibia II of male. Bar represents 50 μ.

Female: (6 individuals measured)

Front indentation of stylophore shallow. Idiosoma 380.8 (334.1~404.5) long, 347.4 (320.5~390.9) wide, green. Dorsal setae of idiosoma stout, densely barbarous, set on strong tubercles, *p*2 adjacent to *p*1, *c*1 adjacent, apart from lateral setae, as are *c*2 and *c*3; *c*4 marginal, *l*4 beneath *c*4, *c*5 adjacent. Humeral setae posterolaterad and adjacent to *l*1. Length of dorsal setae *p*1 54.5 (42.2~63.9), *p*2 62.8 (56.6~71.1), *p*3 72.2 (65.1~80.7), *h* 76.3 (66.3-~84.3), *c*1 59.1 (51.8~72.3), *c*2 55.6 (48.2~66.3), *c*3 54.0 (48.2~60.2), *c*4 76.9 (62.7~85.5), *c*5 79.7 (68.7~88.0), *l*1 67.4 (57.8~77.1), *l*2 67.0 (51.8~78.3), *l*3 66.1 (54.2~74.7), and *l*4 51.0 (39.8~62.7). Distal end of peritreme curved. Numbers of setae and solenidia (in parenthesis) on femora 7-4-3-2, genua 2-2-0-0, tibiae 5(1)-4-3-4, tarsi 4(4) + 1 dupl.-5(4)-5(1)-5(1). Duplex setae comprised of 1 shorter seta + 1 longer solenidion. Leg setae densely barbarous.

Male: (5 individuals measured)

Front indentation of stylophore shallow. Idiosoma 314.5 (290.9~352.3) long, 223.6 (213.6~234.1) wide, yellowish green. Dorsal setae of idiosoma stout, densely barbarous, set on strong tubercles, *c*1 much closer to each other than to lateral setae, as are *c*2 and *c*3; *c*4 marginal, *l*4 beneath *c*4, *c*5 adjacent. Humeral seta posterolaterad and adjacent to *l*1. Length of dorsa setae *p*1 28.0 (24.1~32.5), *p*2 51.9 (44.6~59.0), *p*3 61.2 (51.8~68.7), *h* 62.8 (59.0~71.1), *c*1 24.6 (21.7~27.7), *c*2 22.2 (18.1~27.7), *c*3 23.7 (20.5~25.3), *c*4 51.2 (44.6~56.6), *c*5 41.9 (30.1~49.4), *l*1 39.6 (28.9~49.4), *l*2 58.0 (47.0~62.7), *l*3 39.5 (33.7~43.4), and *l*4 34.7 (31.3~38.6). Distal end of peritreme curved. Numbers of setae and solenidia (in parenthesis) on femora 9-7-4-2, genua 2-2-1-1, tibiae 6(4)-5(2)-4-4, tarsi 6(6) + 1 dupl.-7(6) -7(1)-7(1). Duplex setae comprised of 1 shorter seta + 1 longer solenidion. Leg setae densely barbarous. Shaft of aedeagus bent dorsad almost at a right angle, then bent caudad to form a sigmoid distal end.

Habitats and Localities: Holotype: ♀, TAICHUNG: Dakon, ex. *Mallotus paniculatus* (Lam.) Muell. Arg., 23 Feb. 2003, C.C. Ho. Paratypes: TAICHUNG: Dakon, 4 ♀, 6 ♂, ex. *Mallotus paniculatus* (Lam.) Muell. Arg., 23 Feb. 2003, C.C. Ho; NANTOU: Yuchih, Maolanshan, 2 ♀, ex. *Mallotus paniculatus* (Lam.) Muell. Arg., 28 Mar. 2003, C.C. Ho. All type specimens, TAL092A001~TAL092A013, are deposited in the Taiwan Agricultural Research Institute.

Distribution: Taiwan.

Etymology: Named after the generic name of the host plant**,** *Mallotus*.

Diagnosis: Most *Aponychus* species are reported to have all or part of the dorsal setae barbarous and set on tubercles. This species resembles *A. firmianae* (Ma & Yu)[5], *A. pilipinus* Corpuz-Raros[3], *A. schultzi* Blanchard[1], and *A. taishanicus* Wang[10] in having the dorsal setae set on strong tubercles and the pair member of setae *c*1-3 adjacent, with some even possibly said to be contiguous. However, this species differs from those others in the humeral setae being longer than *l*1, whereas in the above species, the humeral setae are much shorter

than *l*1. Although the members of the dorsocentral setal pair of *A. chiavergatoi* Feres Reinaldo & Flechtmann are closer to each other than to the dorsolateral setae, the *c* setal pair is still at some distance, not adjacent.

Remarks: The body of this species is generally flattened. However, the tubercles from which the setae grow protrude dorsally or laterally, producing a corrugated look.

The lack of 1 seta or the addition of an extra seta was observed on 1 leg segment of some individuals, e.g., 4 setae on femur III (+1) and 3 setae on tibia IV (-1) in some females, and 7 setae on tibia I (+1), 3 setae on tibia III (-1), and 6 setae on tarsus IV (-1) in some males.

Aponychus corpuzae Rimando, 1966 (Figs. 3, 4)

Female: (5 individuals measured)

Idiosoma 433.6 (420.5~452.3) long, 394.1 (368.2~413.6) wide, light green. Dorsal setae of idiosoma densely barbarous, set on tubercles, *p*2, *c*1-3, *l*1-2 smaller and with weak tubercles; *c*4 marginal, *l*4 beneath *c*4. Length of dorsal setae *p*1 49.1 (44.6~53.0), *p*2 19.2 (16.9~21.7), *p*3 70.7 (66.3~75.9), *h* 77.6 (69.9~90.4), *c*1 19.3 (16.9~26.5), *c*2 20.1 (15.7~22.9), *c*3 22.4 (16.9~27.7), *c*4 56.9 (38.6~65.1), *c*5 73.9 (54.2~90.4), *l*1 20.5 (15.7~25.3), *l*2 28.3 (24.1~32.5), *l*3 49.3 (36.1~61.4), and *l*4 22.6 (18.1~27.7). Eyes laterad to *p*2. Propodosoma expanded laterally between *p*3 and humeral seta. Numbers of setae and solenidia (in parenthesis) on femora 7-5-4-2, genua 3-3-2-2, tibiae 5(1)-3-2-2, tarsi 10(5)-8(3) + 1 dupl.-8(1)-8(1). Duplex setae comprised of 1 seta + 1 slightly shorter solenidion. Leg setae densely barbarous.

Male: (2 individuals measured)

Idiosoma 327.3 (315.9~338.6) long, 250.0 (247.7~252.3) wide, light green. Dorsal setae of idiosoma densely barbarous, set on tubercles, *p*2, *c*1-3, *l*1-2 smaller and with weak tubercles; *c*4 marginal, *l*4 beneath *c*4. Length of dorsal setae *p*1 34.9 (33.7~36.1), *p*2 16.3 (13.3~19.3), *p*3 41.3 (34.9~47.0), *h* 53.6 (45.8~60.2), *c*1 13.0 (10.8~15.7), *c*2 15.4 (14.5~16.9), *c*3 16.6 (13.3~20.5), *c*4 34.6 (31.3~38.6), *c*5 38.0 (31.3~44.6), *l*1 13.9 (12.0~15.7), *l*2 24.1 (19.3~28.9), *l*3 27.1 (21.7~28.9), and *l*4 20.9 (18.1~24.1). Eyes laterad to *p*2. Propodosoma expanded laterally between *p*3 and humeral seta. Numbers of setae and solenidia (in parenthesis) on femora 9-6-4-2, genua 3-3-2-2, tibiae 5(4)-3(2)-2-2, tarsi 10(6)-8(4) + 1 dupl.-8(1)-8(1). Duplex setae comprised of 1 seta + 1 slightly shorter solenidion. Leg setae densely barbarous.

Specimens examined: NANTOU: Yuchih, Maolanshan, 5 ♀, 4 ♂, ex. bamboo, 28 Mar. 2003, C. C. Ho.

Distribution: Taiwan, Korea, Japan, China, the Philippines, Thailand, Malaysia, and India.

Remarks: The number of setae on the leg may vary among or within individuals. Seven or 9 setae on tarsus II have been observed.

Ehara[4] and Wang[9] observed the same numbers of setae and solenidia on tarsi I and II, 10(5)-8(4) and 10(6)-9(5) for female and male mites, respectively. Tseng[8] did not separate solenidia from setae and gave the same total numbers of setae + solenidia, except he observed 1 more "seta" on male tarsus II. Rimando[7] reported duplex setae from both tarsi I and II (Table 1).

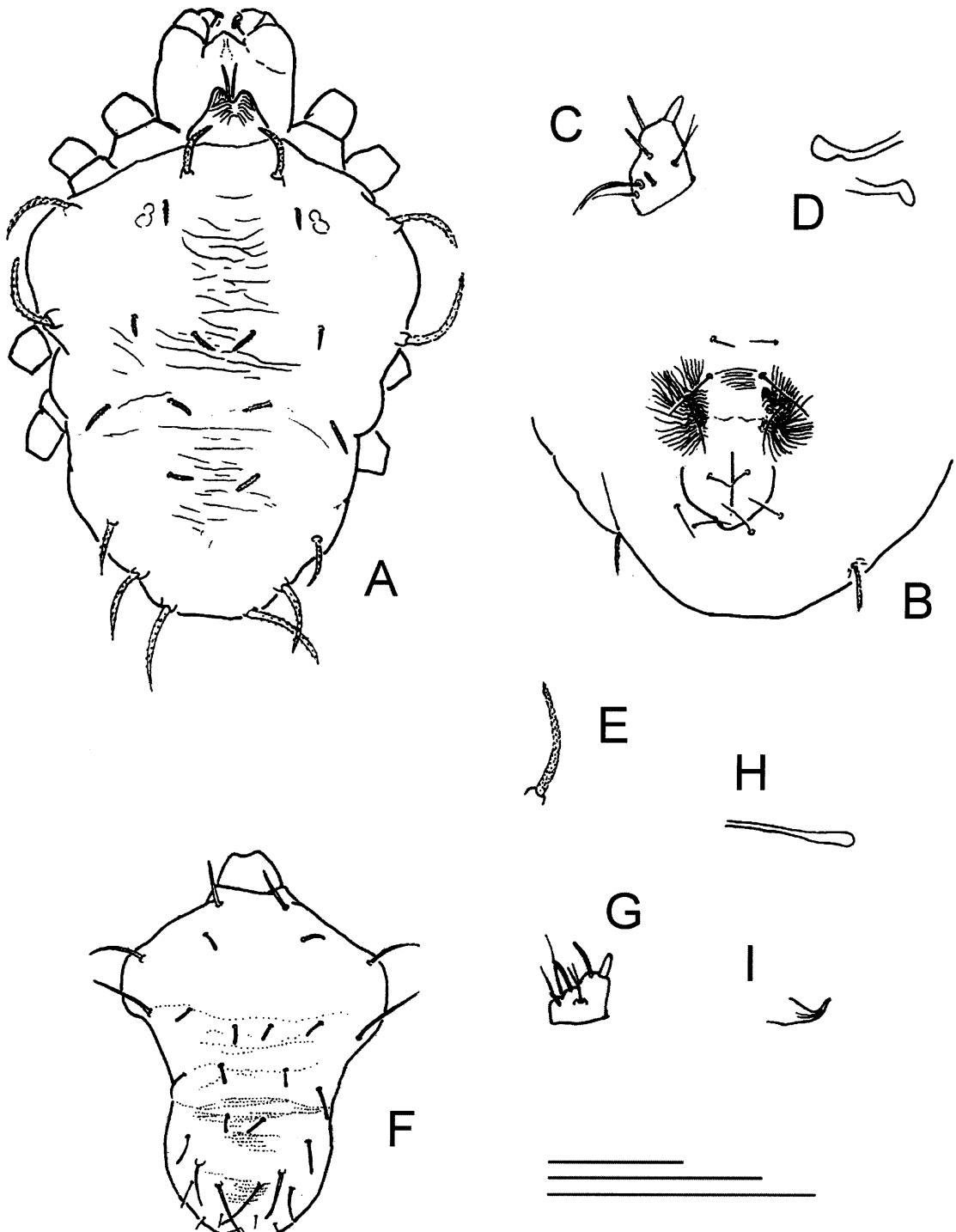


Fig. 3. *Aponychus corpuzae*. A-E. female, A. dorsal view, B. genitoanal area, C. palptarsus, D. peritreme, E. dorsal seta, longer set; F-I. male, F. dorsal view, G. palptarsus, H. peritreme, I. aedeagus. Shortest bar represents 100 μ for A, and F, shorter bar represents 100 μ for B and E, longest bar represents 50 μ for C, D, G, H, and I.

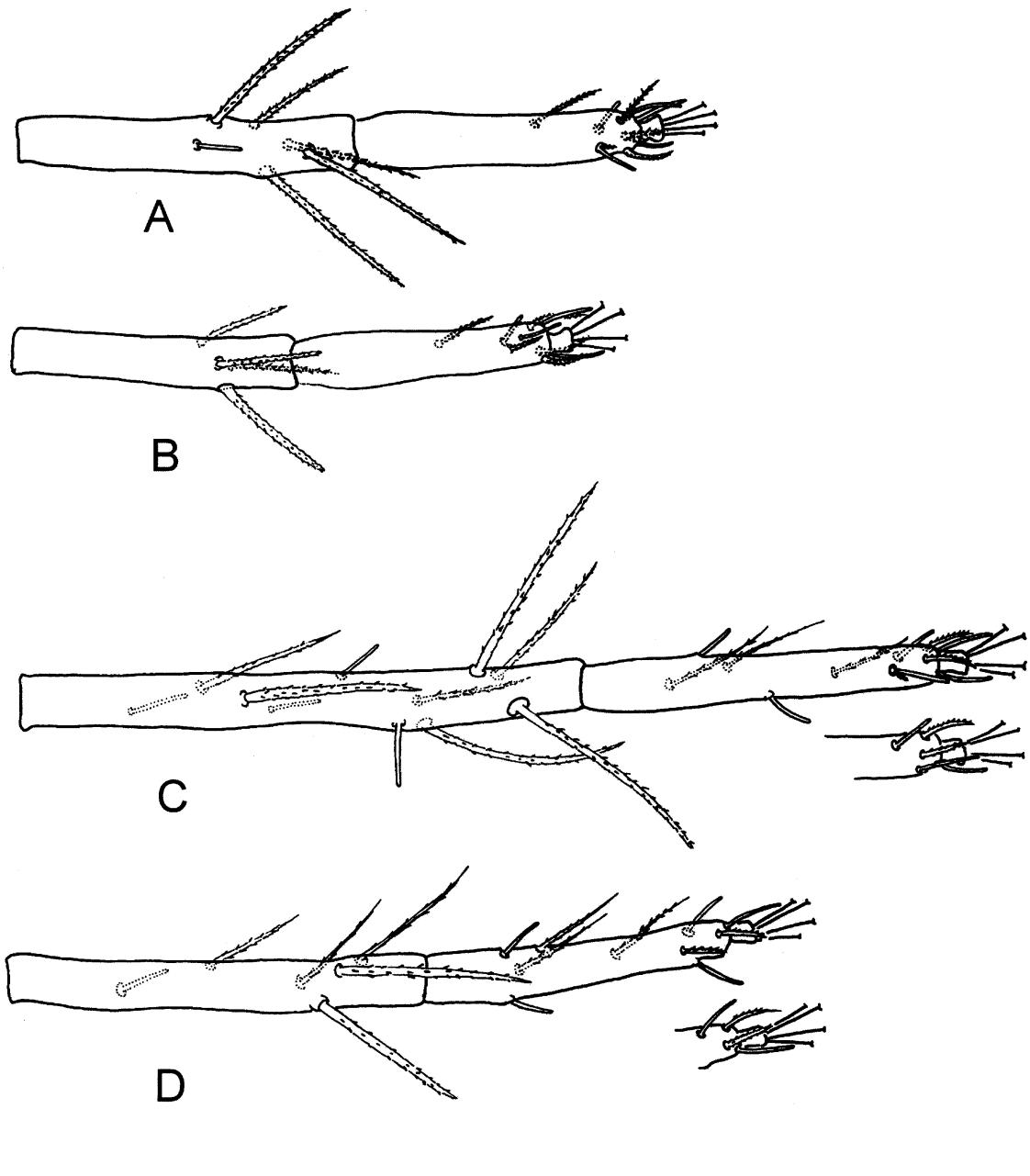


Fig. 4. *Aponychus corpuzae*. A. tarsus I and tibia I of female, B. tarsus II and tibia II of female, C. tarsus I and tibia I of male, D. tarsus II and tibia II of male. Bar represents 50 μ.

Neither Ehara[4], Wang[9], nor Tseng[8] mentioned duplex setae on tarsus I or II. Ma *et al*.[6] observed duplex setae on both tarsi I and II, but female specimens from certain areas lacked duplex setae of tarsus I. In their specimens, the barbarous seta is the shorter component of the

duplex setae, which is contrary to this author's observations. For the 5 female and 4 male specimens examined by this author, none has duplex setae on tarsus I. As these specimens came from the same population, the possibility remains that *A. corpuzae* populations in other location of Taiwan may have duplex setae on tarsus I.

Table 1. Number of setae (solenidia in parenthesis) on tarsi I-II of *Aponychus corpuzae* reported in different articles

Reference	Sex	Tarsus I	Tarsus II
Ehara (1969)[4]	F	10(5)	8(4)
	M	10(6)	9(5)
Tseng (1990)[8]	F	15	12
	M	16	15
Wang (1981)[10]	F	10(5)	8(4)
	M	10(6)	9(5)
Ma *et al*. (1984)[6]	F	14-15 (duplex setae lacking in some specimens)	13 (with duplex setae)
	M	16 (with duplex setae)	14 (with duplex setae)
This report	F	10(5)	8(3)+dupl.
	M	10(6)	8(4)+dupl.

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摘　要

何琦琛*　2003　*Aponychus* 壹新種及 *A. corpuzae* 的重新描述　植保會刊 45：343－351　（台中縣霧峰鄉　行政院農業委員會農業試驗所應用動物組）

臺灣中部地區的龍舌蘭（*Mallotus paniculatus* (Lam.) Muell. Arg.）上採得一新種葉蟎 *Aponychus mallotus* n. sp.。另重新描述作者由竹葉上採得之 *A. corpuzae* Rimando，寫出作者所觀察到的雌雄相，並測量背面剛毛長度。

（關鍵詞：葉蟎、*Aponychus*、新種、重新描述）

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