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New species and New Record of Encyrtidae (Hymenoptera: Chalcidoidea) from Taiwan **【Research report】**

臺灣產跳小蜂科 (膜翅目: 小蜂總科) 之新種與新記錄種 **【研究報告】**

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Received: 2003/03/18 Accepted: 2003/08/14 Available online: 2003/09/01

Abstract

Two species of encyrtid (Hymenoptera: Encyrtidae) were reared from nymphs and female adults of *Antonina graminis* (Maskell) and *Pseudococcus longispinus* (Targioni Tozzetti) (Homoptera: Pseudococcidae) respectively, in Taiwan. Among them, *Anagyrus thailandicus* (Myartseva) is recorded in Taiwan for the first time. *Cryptanusia taiwanus* Chen and Chen sp. n. is new to science. *A. thailandicus* is listed with figures, and the new species is described and illustrated with figures.

摘要

本文首次記錄寄生印度禾粉介殼蟲 (*Antonina graminis* (Maskell)) 及長尾粉介殼蟲 (*Pseudococcus longispinus* (Targioni Tozzetti)) (同翅目: 粉介殼蟲科) 之若蟲及雌成蟲的二種跳小蜂 (膜翅目: 跳小蜂科)。泰國長索跳小蜂 (*Anagyrus thailandicus* (Myartseva)) 為臺灣新記錄種, 而臺灣粉蚧跳小蜂 (*Cryptanusia taiwanus* Chen and Chen sp. n.) 為新種。本文附新記錄種之形態特徵圖及新種之描述與形態特徵圖。

Key words: Hymenoptera, Pseudococcidae, Encyrtidae, new record, new species, Taiwan

關鍵詞: 粉介殼蟲科、跳小蜂科、新記錄種、新種、臺灣

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New species and New Record of Encyrtidae (Hymenoptera: Chalcidoidea) from Taiwan

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ABSTRACT

Two species of encyrtid (Hymenoptera: Encyrtidae) were reared from nymphs and female adults of *Antonina graminis* (Maskell) and *Pseudococcus longispinus* (Targioni Tozzetti) (Homoptera: Pseudococcidae) respectively, in Taiwan. Among them, *Anagyrus thailandicus* (Myartseva) is recorded in Taiwan for the first time. *Cryptanusia taiwanus* Chen and Chen sp. n. is new to science. *A. thailandicus* is listed with figures, and the new species is described and illustrated with figures.

Key words: Hymenoptera, Pseudococcidae, Encyrtidae, new record, new species, Taiwan

Introduction

The mealybugs (Homoptera: Pseudococcidae) are serious pests of agricultural plants, and some members of the tribe Anagyrini Hoffer, belonging to subfamily Tetracneminae (Hymenoptera: Encyrtidae) are their important parasitoids (Noyes and Hayat, 1994). The Encyrtidae was established by Walker in 1837 (Noyes and Hayat, 1994), and has since been divided into two subfamilies, Tetracneminae and Encyrtinae, based primarily on the structure of parastergite (Trjapitzin, 1973). The first record of Anagyrini in Taiwan was *Anagyrus saccharicola* Timberlake by Sonan (1944), and then *A. dactylopii* (Howard) (Tao, 1963). Later, Noyes and Hayat (1994) described six

species of Anagyrini from Taiwan, including *Alamella maai* Noyes & Hayat, which is only one known to be distributed in Taiwan.

The genera of Anagyrini of Oriental area were revised and redefined by Noyes and Hayat (1994) and Noyes (2000). In this report, two species of encyrtids were reared individually from nymphs and female adults of *Antonina graminis* (Maskell) and *Pseudococcus longispinus* (Targioni Tozzetti). The first one is *A. thailandicus* (Myartseva) which were reared from nymphs and female adults of *An. Graminis* was newly recorded to Taiwan; the second is *Cryptanusia taiwanus* Chen and Chen sp. n. which was reared from female adults of *P. longispinus* was determined as a new

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species. *A. thailandicus* is listed, and *C. taiwanus* is described and illustrated. The holotype and one paratype of *C. taiwanus* and other specimens are deposited in the Taiwan Agricultural Research Institute (TARI), Taichung, Taiwan.

The terms and relative measurements (length of 1.0 mm = 100) used in this paper follow those in Noyes and Hayat (1994). In addition, CCW (costal cell width) and WML (forewing margin setae length) were added in this paper.

***Anagyris thailandicus* (Myartseva)**

泰國長索跳小蜂 (Figs. 1-6)

Anathrix thailandicus Myartseva, 1979: Zoologicheskii Zhurnal. 58: 1746-1747.

Pranathrix thailandicus (Myartseva, 1979): Noyes and Hayat, 1984: Bull. Brit. Mus. Nat. Hist. Entomol. 48: 317.

Anagyris thailandicus (Myartseva, 1979): Noyes, 2000: Mem. Am. Entomol. Inst. 62: 29.

Material examination: 5 ♀, 10 ♂, TAIWAN: TAICHUNG: Wufeng, 12-XII-2002, S. P. Chen & J. Y. Wong, ex. *Antonina graminis* (Maskell) on *Cynodon dactylon*. (TARI).

Host: *Antonina graminis* (Maskell) on *Rhynchyletrum roseum* and *Antonina* sp. on grass (Noyes and Hayat, 1994). Reared from nymphs and female adults of *An. graminis* on *C. dactylon*.

Distribution: Taiwan (new record), India, China, Thailand, Vietnam, Malaysia, Indonesia, Philippines, Papua New Guinea, Australia.

***Cryptanusia taiwanus* Chen and Chen sp. n.**

臺灣粉蚧跳小蜂 (Figs. 7-13)

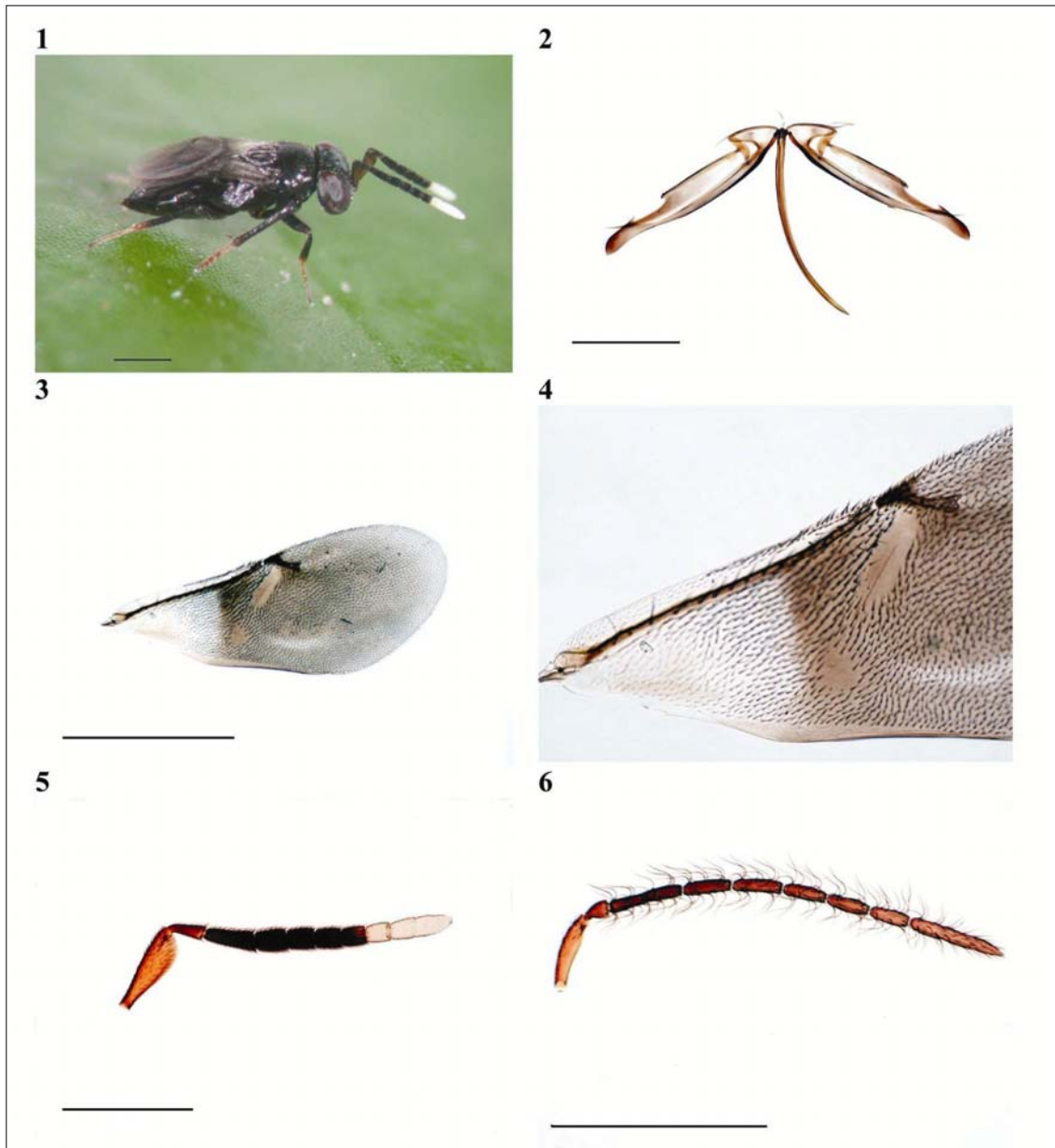
Female: Length 1.18-1.25 mm. Body stout, elongate and flattened dorsoventrally. Length of holotype: 1.25 mm.

Color: Body generally dull brown; head mostly orange with mouth margin area of genae pale brown; clypeus, mandibles, maxillae and labium dull brown. Antennae: radicle dull brown to black; scape dull brown with an oblique subapical and base band beige; pedicel and F1-F6 dull brown; clava 3-segmented beige. Thorax dull yellowish orange except for pronotum and tegulae beige, mesopleura dull brown; forewings infuscate with base cell hyaline shown in Fig. 12. Legs mainly beige, basal 0.2 x of tibia, mid tibia spur and tarsus dull yellowish to dull brown. Abdomen: propodeum dull brown; gaster dark brown to black.

Head: Head as long as broad with conspicuous stout setae especially on frontvertex, genae, mouth margins, eye margin and antennae interference; frontovertex about 1/4 x width of head in dorsal view, with shallow, fine, transverse rugose sculpture about subequal to diameter of an eye facet (Fig. 9); eyes elongate about 2.5 x as long as broad; occiput separated by a sharp fold; malar space about 1/3 x as long as eye; eyes naked; mandibles with upper tooth subequal to the lower; maxillary palpi 4-segmented and labial palpi 3-segmented; antennal toruli quite near mouth margin, its dorsal lowest margin below eye margin ventrally. Antennae (Fig. 8): scape and flagellum strongly broadened and flattened, all funicle segments strongly transverse with F1, F2, F3 subequal in length; clava 3-segmented with C2, C3 subequal in length; radicle elongate, about 2.5 x as long as broad; scape dilated, about 2.2 x as long as broad, the ratio of pedicel: scape: F1 = 1: 6: 2.

Relative measurements (holotype): HW 53.0; HH 53.5; FV 12.3; POL 6.3; OOL 2.0; LOL 4.0; OD 2.5; EL 41.5; EW 17.0; MS 10.5; SL 43.0; SW 20.0.

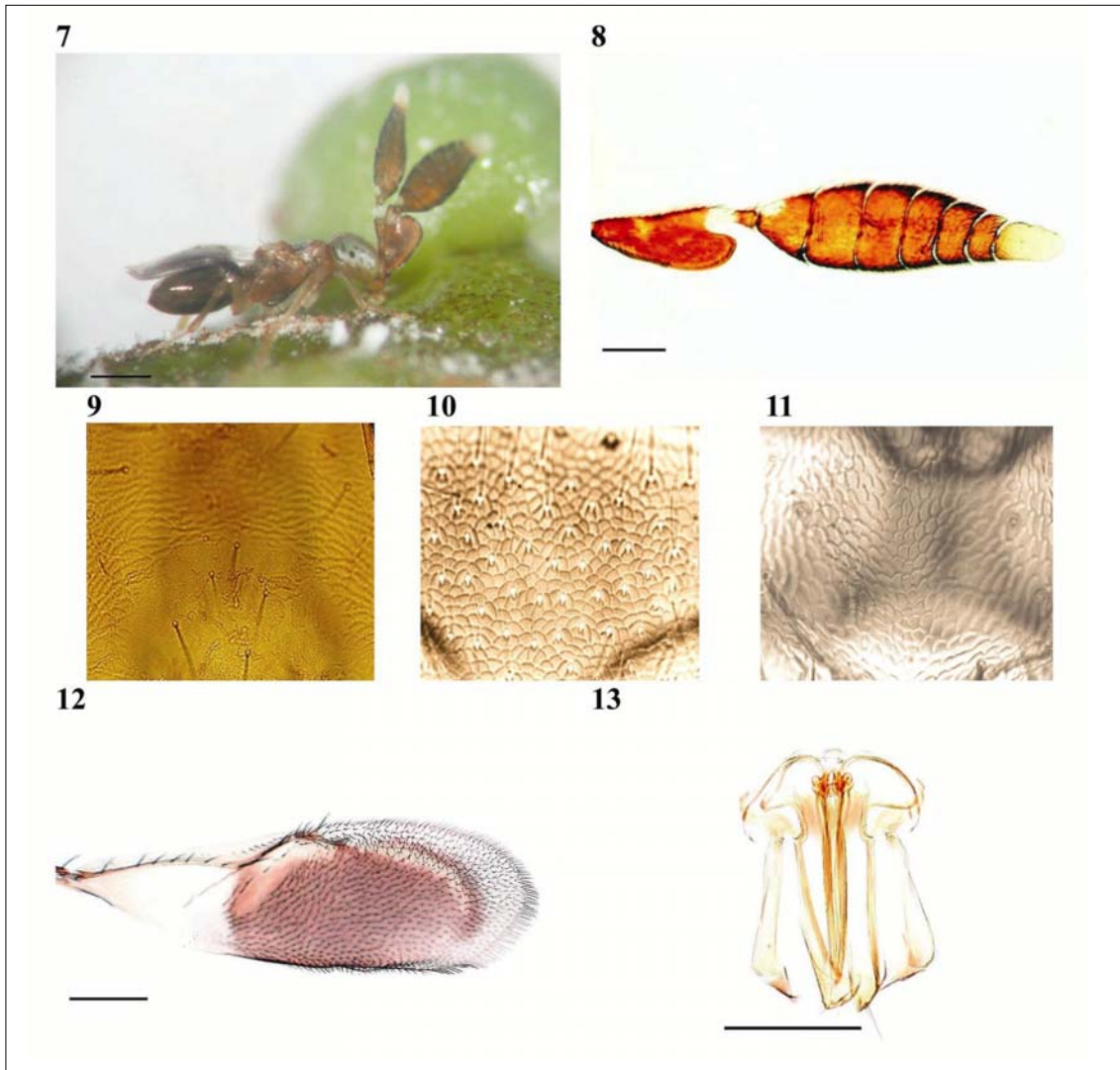
Thorax: Thorax with conspicuously silvery setae especially on mesoscutellum and black stout setae on posterior margin of mesoscutellum; mesoscutum alutaceous



Figs. 1-6. *Anagyrus thailandicus*; 1, adult, ♀; 2, ovipositor, ♀; 3, right forewing, ♀; 4, right forewing base, upper surface, ♀; 5, right antenna, outer aspect, ♀; 6, antenna, ♂. Scales = 0.5 mm.

with punctures rather shallow than axillae, tegulae and scutellum which with fine but illustrious reticulation (Fig. 10-11). Forewings with lines calva interrupted and closed posteriorly; forewings about 2.8 x as long as broad; hindwings hyaline, about 4.5 x as long as broad;

submarginal vein with strongly bent downwards subapically; costal cell with only a single line of setae and interrupted medially ventrally; marginal vein and postmarginal vein combined together slightly shorter than stigmal vein (3:4). Setation at base of forewing and venation



Figs. 7-13. *Cryptanusia taiwanus* sp. n.; 7, adult, ♀; 8, right antenna, outer aspect, ♀; 9, sculpture on frontovertex between anterior ocellus and antennal scrobes (area 85 x 70 μm); 10, sculpture on centre of mesoscutum (area 85 x 70 μm); 11, sculpture on centre of scutellum (area 85 x 70 μm); 12, right forewing, ♀; 13, ovipositor, ♀. Scales = 0.2 mm.

shown in Fig. 12; mid tibial spur about 4.0 x as long as broad and about 1/4 x length of mid tibia.

Relative measurements (holotype):

FWL 114.0; FWW 40.0; HWL 88.0; HWW 23.0; WML 4.0; CCW 5.0.

Abdomen: Gaster longer than the length of thorax; ovipositor exerted inconspicuously (Fig. 13), about 0.6 x length of mid tibia.

cuously (Fig. 13), about 0.6 x length of mid tibia.

Relative measurements (holotype): OL 36.0; GL 50.0.

Male: Unknown.

Materials examined; Holotype ♀, TAIWAN: CHANGHUA: Tienwei, 11-XII- 2002, P. S. Chen & J. Y. Wong.

Paratype: ♀, same data as holotype, ex. *Pseudococcus longispinus* (Targioni Tozzetti) on *Chrysalidocarpus lutescens* (Bory) Wendl (TARI).

Host: female adults of *Pseudococcus longispinus* (Targioni Tozzetti) on *Chrysalidocarpus lutescens* (Bory).

Remarks: Although it is certain that the shape of the head, antennae and forewings of *C. taiwanus* Chen and Chen sp. n. closely resembles *C. albiclava* except the segments of maxillary and labial palpi and structures of scape, setae color pattern of forewing, and proximal part of the second valvifers.

Acknowledgement

We cordially thank Mr. C. Y. Wong for the identification of mealybug.

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Received: March 18, 2003

Accepted: Aug. 14, 2003

臺灣產跳小蜂科（膜翅目：小蜂總科）之新種與新記錄種

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摘 要

本文首次記錄寄生印度禾粉介殼蟲 (*Antonina graminis* (Maskell)) 及長尾粉介殼蟲 (*Pseudococcus longispinus* (Targioni Tozzetti)) (同翅目：粉介殼蟲科) 之若蟲及雌成蟲的二種跳小蜂 (膜翅目：跳小蜂科)。泰國長索跳小蜂 (*Anagyrus thailandicus* (Myartseva)) 為臺灣新記錄，而臺灣粉蚧跳小蜂 (*Cryptanusia taiwanus* Chen and Chen sp. n.) 為新種。本文附新記錄種之形態特徵圖及新種之描述與形態特徵圖。

關鍵詞：粉介殼蟲科、跳小蜂科、新記錄種、新種、臺灣