



Two Predacious Orius Flower Bugs (Hemiptera: Anthocoridae) in Taiwan 【Scientific note】

臺灣兩種捕食性小黑花椿象(半翅目：花椿象科)【科學短訊】

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Abstract

Orius tantillus (Motschulsky) and *O. strigicollis* (Poppus) are common on horticultural crops in Taiwan. These two species which are usually found on chrysanthemum and corn, prey on thrips, aphids, whiteflies, spider mites, and moth eggs. *O. tantillus* was found in higher densities than was *O. strigicollis* in Taiwan. Morphological structures of male genitalia are the major taxonomical characters used to separate these 2 species.

摘要

於1997年台灣園藝作物上調查發現三叉小黑花椿象 *Orius tantillus* (Motschulsky) 與南方小黑花椿象 *O. strigicollis* (Poppus) · 此兩種椿象常存在於同一寄主植物上 · 捕食薊馬、蚜蟲、粉蟲、葉蟬及蟲卵等 · 尤以菊花與玉米上最常見 · 而三叉小黑花椿象之數目又普遍較南方小黑花椿象為多 · 該兩種椿象主要依據雄蟲外生殖器之形狀構造而區辨。

Key words: *Orius tantillus* (Motschulsky), *Orius strigicollis* (Poppus), Taiwan.

關鍵詞: 小黑花椿象 · *Orius strigicollis* (Poppus), *Orius tantillus* (Motschulsky) · 台灣

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Two Predacious *Orius* Flower Bugs (Hemiptera: Anthocoridae) in Taiwan

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ABSTRACT

Orius tantillus (Motschulsky) and *O. strigicollis* (Poppius) are common on horticultural crops in Taiwan. These two species which are usually found on chrysanthemum and corn, prey on thrips, aphids, whiteflies, spider mites, and moth eggs. *O. tantillus* was found in higher densities than was *O. strigicollis* in Taiwan. Morphological structures of male genitalia are the major taxonomical characters used to separate these 2 species.

Key words: *Orius tantillus* (Motschulsky), *Orius strigicollis* (Poppius), Taiwan

There are over 60 species of genus *Orius* worldwide, with at least 20 species distributed in Asian countries (Yasunaga, 1997a; b). In Taiwan, *Orius* flower bugs can be found on greenhouse plants and field crops, but usually in low densities. They prey on small insects such as thrips, aphids, whiteflies, mites, and eggs of insects and mites. *Orius* spp. are potential biocontrol agents for pest management, and are considered especially valuable for controlling thrips (Zang, 1985; Mituda and Calilung, 1989; Chang *et al.*, 1993; Wang, 1994)

Seasonal field trips were made in 1977 to collect and survey *Orius* spp. in lowland areas of Taiwan. Collection sites were Hsiaokang (小港), Likang (里港), Yenchao (燕巢), Chishan (旗山), Matou (麻豆), and Hsinying (新營) in southern Taiwan; Tienwei (田尾), Nantou (南投), Tsaotun (草屯), and Wufeng (霧峰) in central Taiwan; and Hsinchu (新竹), Taoyuan (桃園), Ilan (宜蘭), and Juifang (瑞芳) in northern Taiwan. Corn (*Zea*

mays L.), eggplant (*Solanum integrifolium* Poir.), garland chrysanthemum (*Chrysanthemum coronarium* L.), bitter melon (*Momordica charantia* L.), wax gourd (*Benincasa hispida* (Thunb.) Cogn.), sponge gourd (*Luffa cylindrica* (L.) M. Roem.), kidney bean (*Phaseolus vulgaris* L.), and chrysanthemum (*Chrysanthemum morifolium* Ram.) were the crops primarily investigated.

Orius tantillus (Motschulsky), *O. strigicollis* (Poppius) and some unidentified *Orius* flower bugs were found in the survey (Table 1). *Orius tantillus* and *O. strigicollis* often coexisted on the same crop. More were on corn and chrysanthemum than on other plants. Adults and nymphs of both *Orius* species moved actively and stayed on leaf buds and flowers. On corn, the flower bugs congregated inside the silks and husks at the tip of the ears.

The *Orius* species preying on thrips on eggplants was recognized as *Orius sauteri* (Poppius) (Wang, 1994). However,

Table 1. Number of *Orius* flower bugs collected from various crops in Taiwan

Crop	Region	No. of specimens		
		<i>O. strigicollis</i>	<i>O. tantillus</i>	Unidentified sp.
Corn	S, C, N ^a	26F 3M ^b	55F 47M	2F
Eggplant	S. C.	16F 4M	9F 4M	1F
Garland chrysanthemum	C	2F	3F	—
Bitter gourd	S, C, N	2F 3M	5F 1M	—
Wax gourd	S, N	—	10F	—
Sponge gourd	C	2F 1M	—	—
Kidney bean	S	—	1F	—
Chrysanthemum	C	25F 16M	117F 43M	—
Total		73F 27M	200F 95M	3F

^a S, C, N: southern, central, and northern Taiwan, respectively.

^b F: female; M: male.

O. sauteri was not found in this current survey on eggplants or any other investigated plants. This suggests that *O. sauteri* might not exist in Taiwan, and the *Orius* flower bugs described as *O. sauteri* were actually *O. strigicollis* and/or *O. tantillus*.

Both *O. tantillus* and *O. strigicollis* are tropical and subtropical species. *Orius strigicollis* is distributed in Taiwan, and southern China in such areas as Fukien, Kwangtung, Kiangsu, Chekiang, and Hupeh provinces (Zang, 1985), and in Shikoku, Kyushu, and the Ryukyu of southern Japan (Yasunaga, 1997b). This species was also found on cotton, sorghum, citrus, and cruciferous vegetables (Zang, 1985). Under laboratory conditions, the flower bugs fed on nymphs and adults of aphids (*Aphis gossypii* Glover), spider mites (*Tetranychus* spp.), thrips (*Thrips palmi* Karny, *T. hawaiiensis* (Morgan), *Frankliniella intonsa* (Trybom), and whiteflies (*Bemisia* spp.). They also preyed on nymphs of psyllids, as well as eggs and newly hatched larvae of cotton boll worm, army worm, and other lepidopterous insects (Zang, 1985).

O. tantillus is distributed in Taiwan, southern China (Zang, 1985), Japan (Yasunaga, 1997c), the Philippines, Thailand, Malaysia, India, Sri Lanka, Micronesia, and Australia (Mituda and Calilung,

1989). Its prey is similar to that of *O. strigicollis*. In Taiwan, it was found on corn, eggplant, garland chrysanthemum, bitter gourd, sponge gourd, chrysanthemum, wax gourd, and kidney bean. Other recorded host plants include watermelon, rice, sorghum, and grasses of Gramineae (Zang, 1985, Yasunaga, 1997c).

For identification, slides of male genitalia have been prepared and examined. Paramere bears the major characteristics to separate species of this genus. Numbers and arrangement of setae and body color of females may serve as supplements for identification.

Adults of *O. strigicollis* are small and black in color. Main morphological characters are as follows. Body length 1.7-2.1 mm. Transparent hemelytra yellowish with cuneus darker, and especially evident with female. Female abdominal terminal bushy with at least 3 pairs of longer setae, the length of the longest pair about 3/2 of the 2nd pair. A denticule on paramere (Fig. 1A) of male genitalia. Apex of curved flagellum bends slightly to opposite direction. Over 20 dark brown teeth arranged in a row on fore tibia, 2-4 teeth on base of fore femur.

Adults of *O. tantillus* are smaller than those of *O. strigicollis*. Body length 1.6-1.8 mm. Male smaller. Transparent hemelytra with a uniform yellowish color.

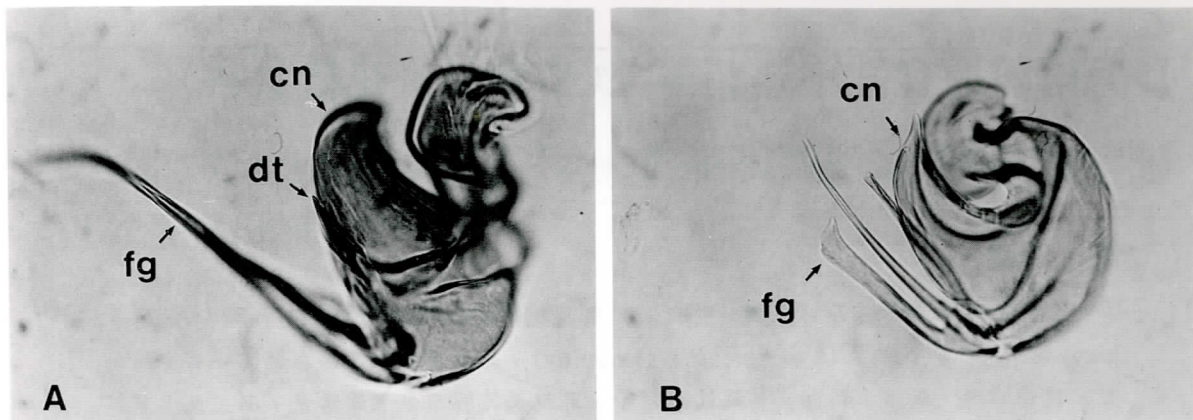


Fig. 1. The paramere of *Orius strigicollis* (A), and *O. tantillus* (B). cn: cone; dt: denticule; fg: flagellum.

Two pairs of dominant setae at female abdominal terminal, the length of 1st pair about twice that of 2nd pair. No denticule on paramere (Fig. 1B) of male genitalia. Flagellum 3-branched. Two teeth on middle of fore femur.

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臺灣兩種捕食性小黑花椿象(半翅目：花椿象科)

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摘 要

於1997年台灣園藝作物上調查發現三叉小黑花椿象*Orius tantillus* (Motschulsky)與南方小黑花椿象*O. strigicollis* (Poppius)，此兩種椿象常存在於同一寄主植物上，捕食薊馬、蚜蟲、粉蟲、葉蟎及蟲卵等，尤以菊花與玉米上最常見，而三叉小黑花椿象之數目又普遍較南方小黑花椿象為多。該兩種椿象主要依據雄蟲外生殖器之形狀構造而區辨。

關鍵詞：小黑花椿象，*Orius strigicollis* (Poppius)，*Orius tantillus* (Motschulsky)，台灣。