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**TWO NEW SPECIES OF *OLIARUS* FROM TAIWAN
(HOMOPTERA : FULGOROIDEA : CIXIIDAE),
WITH PROPOSITION AND DISCUSSION
ON *O. HORISHANUS* GROUP**

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TWO NEW SPECIES OF *OLIARUS* FROM TAIWAN
(HOMOPTERA : FULGOROIDEA : CIXIIDAE),
WITH PROPOSITION AND DISCUSSION
ON *O. HORISHANUS* GROUP¹

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Shun-Chern Tsaaur (1990) Two new species of *Oliarus* from Taiwan (Homoptera : Fulgoroidea : Cixiidae), with proposition and discussion on *O. horishanus* group. Bull. Inst. Zool., Academia Sinica 29(3): 135-139. Two new species of *Oliarus* (*O. hsui* and *O. shiao*) from Taiwan have been added. The *O. horishanus* group proposed here includes five species; *O. horishanus*, *O. hsui*, *O. nigronervatus*, *O. shiao* and *O. yangi*.

Key words: Taiwan, Cixiidae, New species, Taxonomy.

Since the first revision of the Taiwanese Cixiidae published in 1988, 48 species have been recognized and accommodated in 13 genera. Fifteen of these have been referred to the genus *Oliarus*. Except for *Pentastiridius pachycephs* (Matsamura), all of the Taiwanese Cixiidae which bears five carinae on the mesonotum (instead of three) were attributed to this genus. They were intensively revised by Tsaaur *et al.* in 1988 with Tsaaur adding 1 species in 1989.

MATERIALS AND METHODS

This study is based on materials collected by Mr. Y.C. Shiao and Mr. Y.F. Hsu during their field trips in 1989. Types have been deposited in the Insect Museum of National Taiwan University.

The methods and terminology used

in this paper follow Tsaaur *et al.* (1988). All the scale units used here are in mm.

SYSTEMATIC ACCOUNTS

Oliarus hsui sp. nov.

(Fig. 1)

Body covered with powdery wax. Male body generally black. Ocelli dull brown. Face inconspicuously two-colored. Frons mostly black. Postclypeus and keels brownish black; a yellowish brown area on each side of frontoclypeal suture. Margins of pronotum and mesonotum brownish. Pronotum with a yellow stripe behind each intermediate carina. Tegmina translucently greyish along apical cells. Cross veins black. Pygofer brownish yellow.

Vertex concaved in the middle, length 1.8 times longer than width at base;

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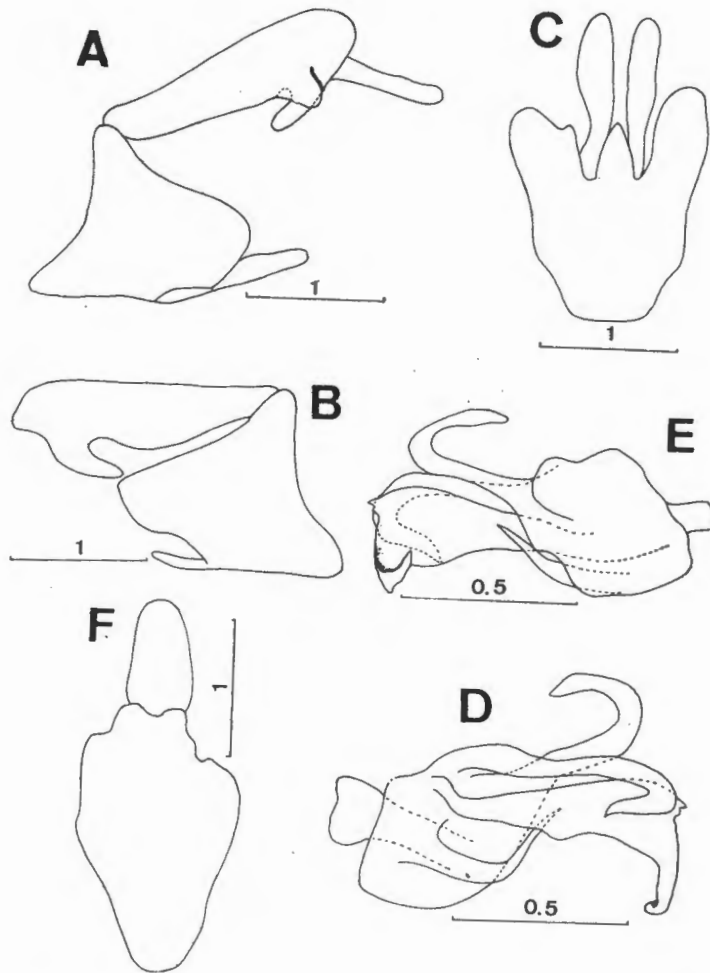


Fig. 1. *Oliarus hsui* sp. nov. A, left side view of pygofer, anal segment and anal style; B, right side view of pygofer and anal segment; C, ventral view of pygofer and genital styles; D-E, aedeagus, D, left side view; E, right side view; F, dorsal view of anal segment and anal style.

median carina feeble on three-fourths of apex, lateroapical areolets separated by a rectangular fossette which extending backwards to two-fifths of apex. Frons slightly longer in middle line than the widest portion, median carina forked at basal fifth. Rostrum slender, almost reaching base of hind-tibia. Tegmen length 3.0 times longer than width, with

11 apical cells; veins densely covered with tiny setae. Chaetotaxy of hind tarsi 7/7.

Male genitalia: Pygofer extremely asymmetrical with each apical margin having a big, quadrated production with a left side larger than the right, medio-ventral process large, flame-shaped with the length much longer than the width

(1.6:1). Anal segment also extremely asymmetrical, long, dilating towards the apex, with an obtuse thumb-shaped production on ventral side of apex when viewed laterally; another recurved, finger-shaped production on ventral side of apex with a concavity formed anteriorly to the production when viewed from the right side; anal style slender, tongue-shaped when viewed dorsally. Genital styles asymmetrical; left stouter than right, showing a fine curve on dorsad when viewed laterally. Aedeagus swollen at basal half, with a total of four spinose processes all visible from left side orientation. The first process slender, tapering toward the apex and paralleling aedeagus along mid-length then curving at 85 degrees toward dorsad. The above process partly covered by a flattened process at tip. The second two moderately long processes initially paralleling aedeagus then recurving and pointing toward cephalad developing into shape which looks like a pair of ran horns. The fourth process, the largest and flattest in shape, slightly swollen at basal third, width broadest at one-third of apex being slightly indented at outer angle and curved ventrally then tapering toward the right side of apex.

Female unknown.

Etymology: The new species is named after the collector, Mr. Y. F. Hsu.

Male body length: 10.0 mm.

Tegmen length : 8.0 mm.

Holotype: CIX001, Male, Chihnanung (指南宮), Taipei City, July 10, 1989, Y. F. Hsu.

Distribution: Taiwan.

Remarks: This species can be easily distinguished from the *horishanus* group by its four spinose processes instead of three in the latter.

Oliarus shiaoi sp. nov.

(Fig. 2)

Body not covered with powdery wax. Male body generally black. Ocelli light yellow. Frons brownish black. Postclypeus with a reverse U-shaped, yellowish brown marking. Keels pale yellow, with a light yellow macula on each side of frontoclypeal suture. Lateral margins of vertex each with a light yellow spot at basal third. Intermediate carinae of pronotum each bearing a prominent yellow patch posterolaterally. Mesonotal carinae brownish black. Tegmina milky-hyaline, each with a grey marking between end of *M* and *Cu*₁.

Vertex concaved in the middle, length 1.7 times longer than width at base, median carina distinct at basal third, lateroapical areolets separated by a rectangular fossette which extending backward to two-fifths. Frons slightly wider at widest portion than length in middle line, median carina forked at basal fifth. Rostrum surpassing hindfemora. Tegmen length 3.1 times longer than width, with 12 apical cells; veins without any setae. Chaetotaxy of hind tarsi 7/7.

Male genitalia: Pygofer asymmetrical with apex protruding caudad; medioventral process large, flame-shaped, with the length longer than the width (1.4:1). Anal segment asymmetrical with subparallel-sided before apical production in lateral view; anal style slender in lateral view and stout in dorsal view. Genital style with outer margin sinuated and finely curved dorsocaudad when viewed laterally. Aedeagus swollen, with a large, membranous area at base. The aedeagus with three processes in total, all visible from left side orientation. The ventral process, the longest, being compressed and straight, tapering toward the apex, obtusely finger-shaped and

directed to the ventral side of apex. The blunt second process rising from one-fifth the length of the first process and subsequently coiled on dorsocephalad. The third bifurcated process curving dorsocaudad then turning to the left side of laterad, closed T-shaped when viewed dorsally.

Female unknown.

Etymology: This new species is named after the collector, Mr. Y.C. Shiao.

Male body length: 10.8 mm.

Tegmen length: 9.0 mm.

Holotype: CIX002, Male, Hsenping (扇平), Kaohsiung Hsien, April 25, 1989, Y. C.

Shiao.

Distribution: Taiwan.

Remarks: Although this species was kept in poor conditions which resulted in the damage of part of the pygofer, genital style and anal segment, the most important characteristic, the male genitalia, was spared and perfectly preserved. Regarding the aedeagal structure, this new species is very closely related to *O. nigronevatus* Fennah because of its remarkable T-shaped process. Yet it can also be distinguished from the latter because of its additional coiled process.

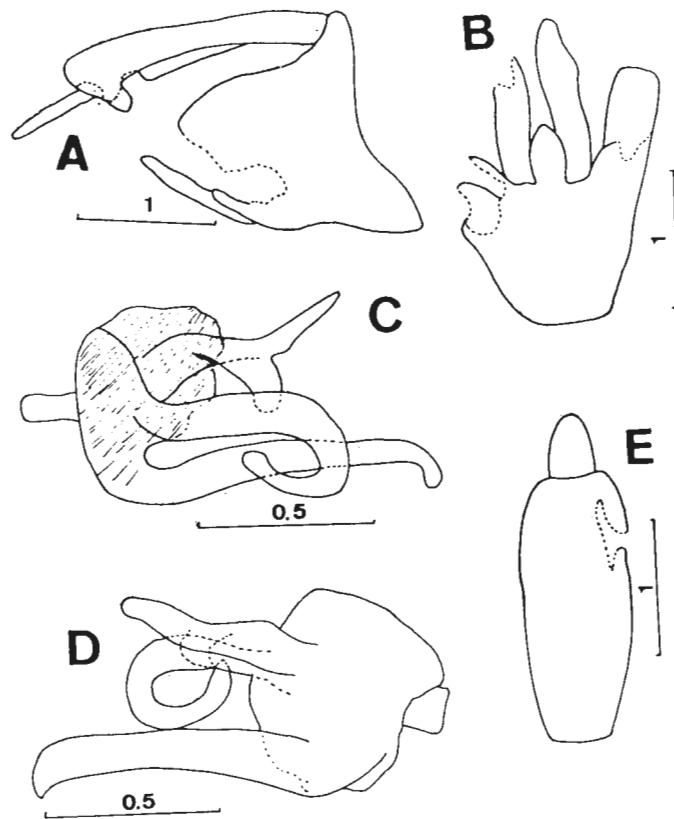


Fig. 2. *Oliarus shiao* sp. nov. A, left side view of pygofer, and genital styles; C-D, aedeagus, C, left side view; D, right side view; E, dorsal view of anal segment and anal style.

DISCUSSION

Among the 17 known *Oliarus* species in Taiwan, four species (*O. horishanus*, *O. hsui*, *O. shiao* and *O. yangi*) are related to one another and form a self-evident species group, the *horishanus*-group. The group proposed here is based on the following characteristics with the contrasting characteristics of other Taiwanese *Oliarus* species included in parentheses: body size of male exceeds 9.5 mm (less than 7.0 mm); aedeagal shaft reduced (tubular); male pygofer and segment extremely asymmetrical (symmetrical in most species); genital styles uniformly oar-shaped (variable); medioventral process of male pygofer large, flame-shaped (mostly triangular only absent in *tapanus*). Besides the above four insular

species, the continental species, *O. nigronervatus* which occurs in Mainland China, should also belong to the *horishanus* group due to it possessing the same defined characteristics.

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臺灣菱飛蝨科 *Oliarus* 屬二新種

曹 順 成

臺灣菱飛蝨科 *Oliarus* 屬之昆蟲共十五種，本文增補新近採得之二新種 *O. hsui* 與 *O. shiao*。在此並提出 *O. horishanus* 種羣，共包括 *O. horishanus*, *O. hsui*, *O. nigronervatus* 與 *O. yangi* 等五種。文中並對此種羣中所界定的特徵加以討論。