



## An unusual occurrence of multiparasitism by two genera of Strepsiptera (Insecta) in a mango leafhopper *Idioscopus clypealis* (Lethierry) (Hemiptera: Cicadellidae) in the Philippines

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### Abstract

The mango leafhopper *Idioscopus clypealis* (Lethierry) (Hemiptera: Cicadellidae) from the Philippines is parasitized by two genera of Strepsiptera, *Halictophagus* and *Callipharixenos*. A redescription of the male *Halictophagus fulmeki* (Hofeneder), a new record and description of its conspecific female and a key to *Halictophagus* in the Philippines are given, and a new species of female, *Callipharixenos philippines* sp. n. is described. The inclusion of the family Callipharixenidae as a subfamily Callipharixeninae within the family Halictophagidae is discussed.

**Key words:** Strepsiptera, *Halictophagus*, *Callipharixenos*, Philippines

### Introduction

Multiparasitism has hitherto been encountered only once in Strepsiptera: in a *Platybrachus* (Heteroptera) parasitized by *Deinelechus australiensis* Perkins 1905 (Elenchidae) and *Halictophagus* sp. (Halictophagidae), which was collected by E. F. Riek in Australia (Kathirithamby 1989a). Here we redescribe *Halictophagus fulmeki* which was first collected by Leopold Fulmek in 1923 from Medan, Sumatra, and described by Hofeneder in 1927 as *Oedicystis fulmeki*. No host was known because the specimen was caught in a light trap. Bohart (1943) identified this male specimen as being similar to *H. membraciphaga* from Mysore State, India, and originally described by Subramaniam (1927) as *Indoxenos membraciphaga*, the host of which was given as *Otinotus pallescens* Distant 1908 (Hemiptera: Membracidae). Subramaniam (1922) described *Pyrilloxenos compactus* from mango leafhoppers *Amritodus atkinsoni* (Lethierry 1889) and *I. clypealis* (Lethierry 1889) in India. Bohart (1943) redescribed this species as *H. indicus*. Kifune and Hirashima (1983), who described a new species *H. (Halictophagus) chantaneeae* from Thailand, argued for its close alliance to *H. fulmeki*.

Although *H. fulmeki*, *H. membraciphaga*, *H. compactus* (Pierce 1914), *H. indicus* Bohart 1943 and *H. chantaneeae* are morphologically similar, and *H. indicus* from India and *H. fulmeki* from the Philippines are said to share the same host, the validity of these species is in question. Until more material becomes available for comparative molecular analysis, this current ambiguous nomenclature cannot be accurately revised.

Furthermore, in describing a new species of *Callipharixenos* we acknowledge that a comprehensive understanding of the species status of *Callipharixenos* can only emerge from a detailed revision of Halictophagidae through molecular taxonomic principles (e.g. Hayward *et al.* 2011; Matsumoto *et al.* 2011). Such an approach is desperately required, not only for *Halictophagus* and *Callipharixenos*, but for most of the other strepsipteran genera. Until such revisions are conducted, an accurate global understanding of the species status of the great majority of Strepsiptera cannot be realized.