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Taxonomy of *Fulgoraecia melanoleuca* (Fletcher, 1939), (Lepidoptera: Epipyropidae) in India, a biological control agent of *Pyrilla perpusilla* (Walker) (Hemiptera: Lophopidae)

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Abstract

The parasitic lepidopteran insect, *Fulgoraecia melanoleuca* (Fletcher) has been reported as an ectoparasitoid of *Pyrilla perpusilla* (Walker) from the Indian subcontinent. For the first time, the complete morphology, field biology, egg laying behavior, larval pupal, and adult morphology, including male and female gentialic features, are described and illustrated.

Key words: Ectoparasite, *F. melanoleuca*, parasitism, morphology, genitalic structures

Introduction

The leafhopper, *Pyrilla perpusilla* (Walker, 1851) (Hemiptera: Lophopidae) is one of the most destructive pests of sugarcane. *Fulgoraecia melanoleuca* (Fletcher, 1939) (Lepidoptera: Epipyropidae) is an ectoparasitoid on nymphs and adults of *P. perpusilla* in India, and it is used extensively for biocontrol programs against this pest. Fletcher (1939) reported for the first time *F. melanoleuca* as an ectoprasitoid of *P. perpusilla* from India. In India and Pakistan considerable work is expended for biological control agents for the control of *P. perpusilla* (Gupta 1940; Rahman & Nath 1940; Khan & Khan 1966; Mohyuddin *et al*. 1982; Khan & Kanhaya 1988; Patel *et al*. 1988; Ansari *et al*. 1989; Joshi & Sharma 1989; Qureshi *et al*. 1993).

The biology of *F. melanoleuca* has been reported by previous researchers *i.e.,* Fletcher (1939), Gupta (1940), Iqbal *et al*. (1985), and Misra & Krishna (1986). However, little information is available on the morphology and taxonomic characters of *F. melanoleuca*. In this manuscript, the detailed morphology of all life stages, with illustrations, is presented.

Material and methods

The present study was conducted at the Indian Agricultural Research Institute, New Delhi during 2008–2010. Field collected eggs were reared under laboratory conditions. Samples of all life stages were preserved for morphological studies. Voucher specimens have been deposited at the National Pusa Collection, Division of Entomology, Indian Agricultural Research Institute, New Delhi, India.

Larval instars were collected and relaxed in warm water and preserved in 70% ethanol. The larvae were boiled in 10% KOH for 1hr at 90 °C, and afterwards cleared and slide mounted in glycerol (Hinton, 1946; Peterson, 1962).

For genitalic study, abdomens were removed and boiled in 10% KOH for 20 min at 90 °C in Dry Block

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