Scientific Note

Occurrence of *Conopomorpha sinensis* Bradley, 1986 (Lepidoptera: Gracillariidae) on litchi (*Litchi chinensis*) in India

*Conopomorpha cramerella* (Snellen, 1904) (originally *Acrocercops cramerella*) is an important pest of cocoa, *Theobroma cacao* L. (Malvaceae), in south Asia (Bradley 1986) but has also been cited as a pest of litchi, *Nephelium litchi* Cambess (Sapindaceae), in India (Singh 1975, Kumar et al. 2011). Bradley (1986), however, in his redescription of *C. cramerella* with descriptions of several related new species (*C. oceanica, C. sinensis*, and *C. litchiella*) concluded that *C. cramerella* is restricted to cocoa and rambutan, *Nephelium lappaceum* L., and does not feed on litchi, while *C. sinensis* and *C. litchiella* both do attack litchi. Bradley (1986) further clarified that the male paratype of litchi fruit borer found boring into the top shoots of litchi in Pusa, India, was identified as *A. cramerella* by E. Meyrick (1916). Until now, there have been no reports from India mentioning the occurrence of *C. sinensis*.

A review of the literature indicates that *C. cramerella* was first reported mining the leaves of litchi in Bihar, India (Singh 1975). More recently, litchi fruit borer damage was estimated at 48–74% in West Bengal, India (Chakraborti et al. 2005). Similarly, several independent reports widely reported *C. cramerella* as the fruit borer occurring on litchi in India (Butani 1977, Lall & Sharma 1978, Kumar et al. 2011). As Bradley (1986) discussed, however, the identification of this economically important pest as *C. cramerella* is incorrect, but Indian workers continue to refer to the litchi fruit borer as *C. cramerella*. Taking all of this into consideration, it is clear that the fruit borer occurring on litchi in India may, in fact, be *C. sinensis* rather than *C. cramerella*. The present study was undertaken to generate taxonomic, molecular and pheromonal response data sets for confirmation of the litchi fruit borer species occurring in India.

An infestation of litchi fruit borer was observed during October to November, 2015 in the experimental fields of the Central Horticultural Experiment Station (CHES), Chettalli, Kodagu (12.38°N, 75.64°E, 609 AMSL), regional station of ICAR-Indian Institute of Horticultural Research, Bengaluru, Karnataka State, India. Fallen fruits (*n* = 3018) of different litchi varieties (i.e., Green, Early Seedless, Dehradun, Shahi, and Dehra Rose) were brought to the laboratory and opened to confirm infestation by *Conopomorpha* spp. We estimated the economic loss caused by litchi fruit borer using correlation and regression analysis. Additionally, visual, fortnightly observations were taken on the number of fruits infested per bunch for each tree. Infested fruits were placed inside wooden cages (46 cm × 46 cm × 46 cm) for rearing through to adult moths. The larvae were whitish in color and pupated within the cages, spinning thin, transparent cocoons. In the field, it was observed that pupation takes place in the leaves. The adult moths are 5 mm in length with a long filiform antenna and narrow, fringed forewings (Fig. 1). Additionally, during active litchi fruit borer incidence, we placed sex pheromone traps with lure ((E,E,Z)-4,6,10-hexadecatrienyl acetate) specific for *C. cramerella* (Pest Control India, Ltd., Bengaluru).

The adult moths were identified morphologically as *C. sinensis* using Bradley (1986) and following the genitalic dissection procedure described in Shashank et al. (2015).