Short Communication

Record of egg parasitoids Telenomus sp. laricis group (Hymenoptera: Platygastridae) and Chaetostricha sp. (Hym: Trichogrammatidae) from Helopeltis theivora Waterhouse (Heteroptera: Miridae) infesting cocoa

P. S. Bhat¹ and Srikumar.K.K²

¹Directorate of Cashew Research, (Indian Council of Agricultural Research) Puttur 574 202, Karnataka, India.
²Department of Entomology, Directorate of Cashew Research, Puttur 574 202, Karnataka, India.

Accepted 1 April, 2013

Helopeltis theivora Waterhouse (Heteroptera: Miridae) is an economically important pest of cocoa causing significant reduction in yield and marketable fruits. From an economic perspective the other plants attacked are cashew and tea. Survey for egg parasitoids of H. theivora from cocoa host has determined two parasitoids viz., Telenomus sp. laricis group (Hymenoptera: Platygastridae) and Chaetostricha sp. (Hymenoptera: Trichogrammatidae). Telenomus sp. was observed predominant with 3.2% parasitism and Chaetostricha sp. showed low level of parasitization of 0.8%. According to our knowledge this is the first report from H. theivora eggs on cocoa. The parasitism provided by these parasitoids certainly warrant further investigations on biological control programmes for this economically important pest.

Key words: Egg parasitoids, biological control, H. theivora, cocoa.

INTRODUCTION

The Tea Mosquito Bug, Helopeltis theivora Waterhouse (Heteroptera: Miridae) is a key pest of cocoa and an emerging pest of cashew in India (CPCRI, 1991; Srikumar and Bhat, 2012). The importance of cocoa pods as a source of food and an oviposition site for H. theivora has been stressed by many workers (Miller, 1941; Tan, 1974). The nymphs and adults of H. theivora infest cherelles, pods and young shoots. Pod feeding is preferred by both nymphs and adults, with adult longevity and fecundity being much greater in pod reared individuals (Awang et al., 1988). Feeding damage on pod appears as dark, circular lesions usually hardening as scars on the husk (Figure 1a). Heavy infestations can result in pod malformation and premature drop (Abraham and Remamony, 1979). Shoot feeding occurs primarily on the midribs of leaves and on young stems, with linear lesions (Figure 1b). Chronic infestations of H. theivora on cocoa lead to repeated growth and dieback that causes witches-broom symptom similar to that induced by the fungus Moniliophthora perniciosa (Stahel) Aime & Phillips-Mora (Agaricales: Marasmiaceae) (Khoo, 1989). As has been found with other crops, H. theivora feeding damage on cocoa is generally concentrated on shaded parts of the plant (Fernando and Manickavasagar, 1956).

Chemical insecticides are still used extensively to control Helopeltis infestations on the major economic crops. Gamma-hydrogen cyanide (lindane) was widely used in the control of H. theivora on cocoa (Chong, 1987), but there were problems with resistance (Tan, 1974). As an alternative to gamma HCH, endosulphan was widely used to control H. antonii on cashew (Devasahayam and Nair, 1986) and H. theivora on tea (Chowdhury, 1993). The insecticides, λ-cyhalothrin (0.003%) and carbaryl (0.1%) had shown longest residual action against nymphs and adults of Helopeltis spp. (Sundararaju et al., 1993). Integrated control programmes that reduce the
Figure 1. *H.theivora* damage symptoms on cocoa pod (a) and cocoa young shoot.

Figure 2. Per cent parasitism (a) and no. of eggs parasitized (b) of *H.theivora*

_The objective of the present study was to record parasitoids that attack *H.theivora* eggs on cocoa._

**MATERIALS AND METHODS**

The cocoa plant parts (shoots and cherelles) containing eggs of *H. theivora* were collected and counted under a stereomicroscope. The counted eggs were treated wi
carbendazim (fungicide) 0.1% solution for 15 minutes. After treatment, samples were dried to remove the dampness of carbendazim solution and placed in a plastic container (250 ml capacity) fitted with a glass tube (75 mm x 7.5 mm) to record the emergence of parasitoids. The container was wrapped with black paper leaving the glass tube exposed for better view of parasitoids that emerge, if any.

RESULTS AND DISCUSSION

Observation of 83 eggs of *H. theivora* collected during the study determined the existence of two genera of egg parasitoids viz., *Telenomus* sp. (Figure 2a) and *Chaetostricha* sp. (Figure 2b). *Telenomus* sp. was observed predominant with 3.2% parasitism and *Chaetostricha* sp. showed low level of parasitization of 0.8% (Figure 3a, b).

*Telenomus* sp. has been reported in India on *H. cinchonae* Mann, (Heteroptera: Miridae) (Simmon, 1970), on *H. theobromae* Miller from Malaysia (Ibrahim, 1989) and on *H. antonii* Signoret from India (Sundararaju, 1993). *Chaetostricha* sp. is a minor egg parasitoid of *H. antonii* on cashew (Sundararaju, 1993; Sundararaju, 1996).

On cashew, *Telenomus* sp. is predominant and acted as a constant mortality factor in the population of *H. antonii* and the extent of parasitization was observed almost throughout the year with a range of 1.8% to 45.5%, whereas *Chaetostricha* sp. showed low level of parasitization of 0.7% to 4.3% (Sundararaju, 1993).

Since *Telenomus* sp. appears to be dominant, there is further scope of enhancing its parasitization in the cropping season by suitable augmentation techniques.

ACKNOWLEDGEMENT

The authors are grateful to the Director, DCR, Puttur, for providing the facilities and ICAR network project ‘ORP on management of sucking pests’ (funded through IIHR, Bangalore) for providing financial support.

REFERENCES


