

Research Article

Taxonomy, bionomics and predatory potential of *Eocanthecona concinna* (Walker) (Hemiptera: Pentatomidae: Asopinae)

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ABSTRACT: *Eocanthecona concinna* (Walker) is recorded as an important predator of lepidopteran pests in tea plantations of South India. It is described for the first time based on male and female genitalia. Biology of this predator was studied on *Coryra cephalonica* larvae. Egg incubation period was 14.3 ± 0.4 days. Five nymphal instars were developed in a period of 33–36 days. Feeding efficacy of different instars of *E. concinna* was evaluated on third instar tea looper, *Biston suppressaria*. Results showed fourth and fifth instars of *E. concinna* attacked faster on *B. suppressaria*. The study describes *E. concinna* as a potential predator of various lepidopteran pests in tea plantations and a promising candidate for biological control of looper pests.

KEY WORDS: Biology, predatory stink bug, predatory efficiency, lepidopteran pests, taxonomy

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INTRODUCTION

The members of the subfamily Asopinae, are commonly known as predatory stink bugs, characterized by a strong four segmented rostrum. First segment of rostrum is thickened and free which makes it easier to prey upon. This subfamily comprises 66 genera worldwide and *Eocanthecona* is represented by 20 species around the world (Rider, 2017). They feed on insects especially lepidopteran larvae and are efficient biological control agent against several pests. The tea flushworm, *Cydia leucostoma* (Meyr.) (Tortricidae: Lepidoptera) and tea leaf-roller, *Caloptilia theivora* (Walsm.) (Lepidoptera: Gracillariidae) are minor lepidopteran pests but often becomes serious (Murthy and Chandrasekaran, 1979). Looper caterpillar, *Biston suppressaria* (Guenee) is one of the major defoliating pests of tea (Fig. 7). This pest was first collected from Nowgong district of Assam (Cotes, 1985). It is one of the common pests of tea (Antram, 1911). The looper is an active defoliator of tea and its infestation may become devastating within a short period (Rahman and Bhola, 2012).

During fieldwork the authors collected aninteresting predatory stinkbug, *Eocanthecona concinna* (Walker, 1867) in tea. This is the first report of this predator in tea plantations. This species was first reported by Walker in 1867 as *Canthecona concinna* from Hong Kong, China. This species is recently described from Kolhapur district

of Maharashtra (Waghmare and Gaikwad, 2017). There is no report on the biology and predatory potential of this efficient predator.

The present study is the first attempt to study the biological parameters and predatory efficacy on larvae of *B. suppressaria*. Apart from this *E. concinna* is described based on male and female genitalia for the first time.

MATERIAL AND METHODS

Morphological characterization

Photographs were made using Leica DFC 420 camera mounted on a Leica M205A stereo zoom microscope and by using the software Automontage[®]. The dissections were carried out under the stereomicroscope Leica S8APO. Photographs were edited using Adobe Photoshop CS (Version 8.0). The procedure to dissect male genitalia as detailed by Ahmad (1986) was followed. The female genitalia was dissected after boiling the whole abdomen in hot water for about 10–15 minutes with 10% Potassium Hydroxide (KOH). The internal contents were cleared after thoroughly washing it in distilled water for 2–3 times and with the help of fine forceps, the terminalia and spermatheca were detached from abdominal ventrites. All measurement are given in millimetres and presented as minimum and maximum values. The following dimensions were measured: Body length (from apex of mandibular plates to apex of