



Eocanthecona furcellata (Wolff) (Hemiptera: Pentatomidae), a potential biocontrol agent of the black inch worm, *Hyposidra talaca* Walker (Lepidoptera: Geometridae) infesting tea

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Received: 24 April 2020 / Accepted: 14 January 2021

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Abstract Field observations were made to find out seasonal abundance of *Eocanthecona furcellata* (Wolff) (Hemiptera: Pentatomidae) a predatory bug of an invasive pest, the black inch worm, *Hyposidra talaca* Walker (Lepidoptera: Geometridae) in tea ecosystem. The trend of population study revealed that *E. furcellata* was abundant throughout the cropping period, with peaks during June to September. Investigations were also carried out on the biology and predatory efficiency of *E. furcellata* on the larvae of *H. talaca*. The fecundity of the predatory bug was recorded as 276.6 ± 15.8 eggs/female. The incubation period was 7.0 ± 1.0 days, total nymphal development period 21.8 ± 0.7 days and adult longevity was 30.8 ± 1.9 days. Construction of life table of *E. furcellata* by rearing the tea looper *H. talaca* indicated that, the life table parameters like, intrinsic rate of natural increase (r_m) was 0.149, net reproductive rate (R_0) was 218.14 eggs/female, gross reproduction rate (Σmx) was 244.69, generation time (T) 35.49 d,

doubling time (DT) 4.63 d and finite rate of increase (λ) was 1.161. The adult female consumed 10.2 ± 0.8 s instar looper in 'no-choice' condition, whereas in 'free-choice' condition the consumption was 9.8 ± 1.1 second instar and 5.4 ± 1.1 fifth instar larvae of *H. talaca* per day. The impact of commonly used pesticides on the predator indicated varying degree of mortality on nymphs and adults after 24 h of exposure. Hence, *E. furcellata* could effectively be utilized in the IPM programme envisaged for tea for effective management of *H. talaca*.

Keywords Seasonal abundance · Life table · Stink bug · Black inch looper · Predator · Tea

Introduction

Tea, *Camelia sinensis* Kuntze, ecosystem offers food, shelter and serving as a breeding ground to numerous arthropods, resulting increasing the number to about 167 pests (Das 1965) and diverse natural enemies (Das et al. 2010; Roy et al. 2014). Among all the tea pests, the polyphagous lepidopteran pests migrated to tea ecosystem from the nearby forests and make their habitat in tea plantation as well as on shade trees *Albizia* spp. (*A. odoratissima*, *A. chinensis*) (Das and Mukhopadhyay 2014). The *Hyposidra talaca* (Walker) (Lepidoptera: Geometridae), commonly known as the black inch looper, is the dominant lepidopteran arthropod pest which causes substantial damages (11–55%) to the crop in Dooars, Terai (plains in the foothills of the eastern Himalayas in

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Published online: 23 January 2021

Springer

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21.10.2021