



Research Article

STUDY ON THE BIOLOGY, FEEDING BEHAVIOUR AND PREDATORY POTENTIAL OF *Sycanus collaris* (FABRICIUS) (HETEROPTERA: REDUVIIDAE), A NEW PREDATOR OF *Hyposidra talaca* (WALK.) (LEPIDOPTERA: GEOMETRIDAE), A MAJOR TEA PEST AND MASS REARING ON *Corcyra cephalonica* (STAINTON) IN LABORATORY

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ABSTRACT

The sustainable utilization of biological control agents in agro-ecosystems depend on the data on biology, bio-ecology and feeding behaviour of that biological control agents on their main or alternative host. In the present study, the biology, feeding behavior and predatory potential of a newly recorded reduviid predator *Sycanus collaris*, from tea ecosystem found preying on one of the major tea pests *Hyposidra talaca*, have been observed under laboratory conditions. The incubation period, duration of the nymphal stages and longevity of adult stages were observed both on *Corcyra cephalonica* (rice meal moth) and on *H. talaca*. The incubation period was recorded as 13.6±1.1 and 11.8±2.3, duration of nymphal stages as 58.4 ±3.9 and 64.8±4.1, adult longevity 99.8±3.5 and 108.6±2.8 days respectively on rice meal moth and tea looper respectively. The fecundity (total number of eggs laid /female) was found to be 282.0± 23.9 and 320.4± 44.2 eggs/female when feed on larvae of *C. cephalonica* and *H. talaca* respectively. Predatory potential of the reduviid bug *S. collaris*, has been studied by providing larvae of tea looper, *H. talaca* in laboratory. The predator *S. collaris* attacked more prey to satiate itself at a given point of time. In the case of free choice feeding condition, wherein the adult males consumed a 4.6±1.8 fifth instar larvae of *H. talaca* while the adult female consumed 5.0±1.6 per day. However, the nymphal consumption varied between 3.2±1.3 on third instar and 2.2±0.8 fifth instar of looper. The feeding behaviour of the predator such as the time taken for approach and attacking, paralyzing, sucking on the prey were also recorded. The adult female could paralyze a grown-up looper within 5-8 seconds and sucked the body sap within 119-121 seconds. First instar nymph of the reduviid bug preferred only second instar larvae of looper and group feeding was observed whereas, with the advancement of the nymphal instar they prefer to predate on later stages of looper (fourth and fifth instars) when compared to the early instars.

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INTRODUCTION

Reduviidae a large family belongs to the order Hemiptera, found to be efficient predators of different insect pest, preferably lepidopteran larvae (Ambrose et al., 2009). *Sycanus collaris*, known as assassin bug, all of its life stage efficiently feed on the target insect. Depending on the feeding on different insect the developmental period and fecundity rate is also different when fed on different hosts (George, 2000). The perennial monoculture crop tea (*Camellia sinensis* L.),

provides a stable shelter, food and microenvironment for breeding for diverse species of arthropod throughout the year (Babu et al., 2014). Among them, some arthropods are considered as pest and some are considered as biological control agents. In the tea ecosystem of Dooars and Darjeeling regions of West Bengal among different *Sycanus* species of Reduviidae family of order Hemiptera only *Sycanus croceovittatus* (Dohrn) have been reported (Das et al., 2010 and Mitra et al., 2018). The sequential predatory behaviour of the Genus *Sycanus* on its prey is very active (Ambrose, 1999). Sahayaraj, (2012) developed a rearing technique of reduviids using meat-based artificial diets which could be useful for mass rearing and pest management programme. There is no information available on *Sycanus collaris* as a predator of *H. talaca* in tea ecosystem of West Bengal and North East India

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