# Predatory Potential of Reduviid Bug

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## Introduction

The Heteropteran family Reduviidae is known as the "assassin bug" since the majority of its members hunt and consume other insects. With 7,000 species and subspecies, 913 genera, and 25 subfamilies, the predatory hemipteran family reduviids is the biggest in the world (Maldonado 1990). About 20 significant insect pests, particularly Lepidoptera larvae, are consumed by the reduviid predator *Rhynocoris marginatus* (Fab.) (Reduviidae: Hemiptera) (Sahayaraj and Ravi 2007; Ambrose *et al.,* 2009).The mass production of natural enemies is a prerequisite for augmentative biological control programs.

**Why Reduviids Are Dominant Predators?**

Common natural enemies in any agroecosystem include coccinellids, chrysopids, other hemipteran predators, ground-dwelling coleopteran predators, and spiders.The reduviid predators are regarded as being more dominant than coccinellids (Sahayaraj and Raju 2006),*Chrysoperlacarnea* (Rosenheim *et al.,* 1999), and spiders (Wignall and Taylor 2008; 2009).Additionally, reduviid predators are resistant tomajor pesticides (James and Vogele 2001;Zulkefli *et al.,*2004; Abdul Hakeem 2008) andbiopesticides (Jaronski *etal.*,1998; Fadare andOsisanya 1998; Fadare and Amusa 2003).This particular group of predators has been valued as a key biocontrol agent in the pest management programme. Depending on the size of the prey, its predatory rate ranged from 1 to 18 prey/day. Reduviids They were effective biocontrol agents because they killed more prey than they required to survive.

**Plant-Associated Reduviids**

According to Cohen (1996), in someHeteropteran families (Reduviidae, Phymatinae,And Nabidae), all members are obligateCarnivores (including entomophages), whereasin a few species of a subfamily havetaken a predaceous mode of life.Though more than 96 % of reduviid predators arezoophagous,Harpactorinae species live in a specific relationship with certain plant species from which they obtain carbohydrates from food bodies, extrafloral nectar, and hemipteran honeydew,or from sap by biting the plants (says Stoner *et al.,*1975; Berenger and Pluot-Sigwalt 1997; Tallamyetl. 2004).

**Prey Record**

1.Insect Pest Feeders
2.MillipedeFeeders
3.Termite Feeders
4.Spider Feeders (Araneophagic)
5.Ant Feeders
6.BeeFeeders
7.VectorFeeders
8.Postharvest Pests Feeders

**Prey choice**

Preference for the prey stage was assessed in choice and non-choice tests. Among the tested predatorystages, third, fourth, andfifth nymphal instars and adult *R. marginatus*was the preferred food ofthe

second, fourth, and fifth nymphal instars of*D.cingulatus,* respectively. The prey preferencewas different when *R. marginatus* was providedwith life stages *S. litura* (second-, third- fourth,and fifth-instar larvae).

The preferences vary depending on the stage (Sahayaraj and Sivakumar 1995).Reduviid predator life stages favor a specific stage of the prey. Larger-sized predatorsPreferred larger-sized prey and the smaller-sized predator preferred smaller-sized prey.Reduviids preferred soft-bodied lepidopteronCaterpillars. Specific prey could not draw out similarPreferenceson different predators, and timelyRelease of the predator into infested fields will result in successful prey control.


Sahayaraj,K. (2014)

Rhynocoris marginatus nymphs (a–f) and adults (f) feeding on *Nilaparvata lugens* (a), *Spodoptera litura* (b), *Achaeajanata* (c), *Phenacoccussolenopsis* (d and f), *Pericalliaricini* (e), *Epilachna vigintioctopunctata*

**Augmentative Biological Control**

In order to "inundate" pest populations with natural enemies or "augment" natural enemy populations, large numbers of insectaria-reared natural enemies are simply released. *Rhinoceros marginatus* Fab. (5,000 @ ha1), *Rhynocoris kumari*Ambrose and Livingstone (5,300 @ ha1), and *Rhynocoris longifrons* Distant (5,600 @ ha1) (unpublished data) were released into the groundnut field, and It enhanced groundnut yield from 500 to 800 kg ha-1 anddecreased pest incidence and infestation. Similarly, in lady's finger orchards, the biological control potential of *A. pedestris* on *H. armigera* was recorded.

Tactic predators use a variety of tactics to catch prey, from sit-and-wait tactics, where the predator waits for prey to approach.While some predators will choose

a single strategy to attack all or the majority of their prey(e.g. crab spiders that ambush pollinating insects on flowers), others may flexibly alternate between tactics dependingon the type of prey, the environment, or circumstances during the hunt. A predator that hunts dangerous prey may use specialized, prey-specific tactics.

**Summary**

Reduviids feed on preys larger than their body size. Larger-sized predatorsPreferred larger-sized prey and small-sized predator preferred small-sized prey, hence the timely release of the predator into the pest-infested fields is necessary for effective control. *RhynocorisMarginatus* highly preferred lepidopteran larvae followed by nymphs and adults of both Hemiptera and Coleoptera. Depending on prey size, its predatory rate ranged from 1 to 18 prey per day.ReduviidsKilled more prey than needed to survive, making themeffective biocontrol agents.

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