

Evaluation of Food Search Behavior of *Cryptolaemus montrouzieri* a Predatory Beetle of Mealybugs

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Biological control of insect pest has been widely accepted as it is specific, residue free and eco-friendly nature and considered as the most promising approach in insect population management in agroecosystems. Parasitoids and insect predators are used as biocontrol agents and use of predators are more appropriate when the host population is increasing rapidly. Search and feed behavior of predator is a key factor that influences the efficacy of the approach. *Cryptolaemus montrouzieri*, a predatory coccinellid beetle which has been in use mainly in greenhouse pest control in European countries. This species is naturally available in Sri Lankan ecosystem and a potential candidate for mealybug control. This study was conducted with the objective of evaluating the search and feed behavior of *C. montrouzieri* on *Phenacoccus manihoti*. The maximum distance that *C. montrouzieri* larvae can respond for food and search behavior of the adults was examined under laboratory conditions. The time taken to reach the food source when given at 5, 10, 15 cm distances, was significantly different with second instar larva (L₂) (P<0.05), third instar larva (L₃) (P<0.05) and fourth instar larva (L₄) (P<0.05). All three instars could not find the food source when the distance was over 5 cm within a two hour period. With respect to the food search time by adults, adults took 42.5±5.7 minutes to locate food when the source was at 12.5±0.7 cm distance. Upon finding the food, most adults fed on food for 153.7±14.3 minutes and some beetles started the second search, and found them 10.6±0.9 cm away from the first food source by the end of the observation period. No significant difference was observed between males and females with respect to the search duration; however, the feeding (P<0.05) and resting durations (P<0.05) were significantly different. These data reveal the potential of *C. montrouzieri* as a predator of mealybugs.

Keywords: *Cryptolaemus montrouzieri*, Mealybugs, Predatory beetle, Search behavior