

Biological studies on coccinellid predator, *Cryptolaemus montrouzieri* Muls. of grapevine mealy bug, *Maconellicoccus hirsutus* green

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(Accepted : February, 2008)

The coccinellid predator, *Cryptolaemus montrouzieri* Muls. of grapevine mealy bug, *Maconellicoccus hirsutus* Green was studied in the present investigation in the laboratory conditions (temp. 25°C to 31°C with 65% to 72% R.H.) at Department of Agricultural Entomology, MAU, Parbhani (MS). The Australian coccinellid, *Cryptolaemus montrouzieri* Muls. has been established very well because of its role in biological suppression of mealy bugs (Mani and Krishnamurthy, 1997). but very little work was carried out on this predator in Maharashtra. Hence, an attempt has been made in the present investigation to study the life history of the *Cryptolaemus* on grapevine mealy bug, *Maconellicoccus hirsutus* Green and to know its feeding potentiality. The incubation period of *C. montrouzieri* was 3 to 7 days. The duration of the first, second, third and fourth instars grub were 4 to 7, 3 to 5, 5 to 10 and 7 to 11 days. Prepupal and pupal periods ranged from 2 to 3 and 6 to 10 days. The males lived for 69.7 days and females for 74.7 days. The oviposition period lasted for 54 to 83 days. The females laid 476.2 eggs. While sex ratio was 1:1 the predation rate of *C. montrouzieri* on the biostages of *M. hirsutus* were in the order of eggs > nymphs > adults. It can also be concluded that female consumed more biostages during their life span than the males in the present studies.

Key words : Coccinellid predator, Grapevine mealy bug, *Maconellicoccus hirsutus* Green

INTRODUCTION

The pink mealy bug, *Maconellicoccus hirsutus* Green is very serious problem in the grape orchards through out the India. It is very hard to kill by chemicals because of its protective waxy coating. Hence the biological control through its natural enemies like predators are of great importance, since they have proved their value in checking so many homopteran pests. (PDBC Rep., 1995) The Australian lady bird beetle, *Cryptolaemus montrouzieri* Muls. is a important mealy bug destroyer. Though this predator is now well established in South India and available information on successful multiplication and establishment of this predator under agroclimatic conditions of Marathwada region of Maharashtra is scanty. Hence, the exploitation of this coccinellid as biocontrol agent of grape mealy bug, *M. hirsutus* is contemplated to generate information that will be useful in the mass multiplication and augmentation program.

MATERIALS AND METHODS

The technique of propagating mealy bug culture as well as its predator on ripe red pumpkin fruits was utilized for present study as standardized method by Chacko *et al.* (1978). The egg, larval, pupal period and adult emergence and its survival were recorded. Also their

mating period, pre oviposition and oviposition periods of female beetles with fecundity recorded periodically.

In order to determine the feeding preference and feeding potential of the grub and adult stages of the predator, known number of eggs, nymphs and adults of mealy bug, *M. hirsutus* were supplied separately as well as in combinations. For these studies newly hatched grubs and emerged adults of *C. montrouzieri* were used. Petri plates (10 x 2 cm) were used for grubs while the adults were confined to transparent plastic container (9 x 11 cm) with muslin cloth and rubber bands for confining. As soon as the cast skin was observed the number of eggs left uneaten were counted and deducted from the total number of eggs to be supplied. The total number of bio-stages consumed by the each instars grub was assessed as per the procedure suggested by Murthy (1982). The total development period of grub and longevity of adults were recorded.

RESULTS AND DISCUSSION

Biology of the predator, C. Montrouzieri :

The results obtained in the biological studies and morphometric characters on *C. montrouzieri* are presented in Table 1 and Table 2 respectively

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