



## Efficacy of *Cryptolaemus montrouzieri* Mulsant in the suppression of *Rastrococcus invadens* Williams on sapota

M. MANI, A. KRISHNAMOORTHY and G. L. PATTAR

Division of Entomology and Nematology

Indian Institute of Horticultural Research

Hessaraghatta Lake, Bangalore 560 089, Karnataka, India

E-mail: mmani@ihr.res.in

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**ABSTRACT:** The mealybug *Rastrococcus invadens* Williams was recorded in serious form on sapota (*Manilkara zapota* Forberg) in May 2002 at the Indian Institute of Horticultural Research Farm, Bangalore. The coccinellid predator, *Cryptolaemus montrouzieri* Mulsant was released for its suppression on sapota. The population of the mealybug declined from initial infestation of 507.6/ shoot to 0.00 in two months time. No other natural enemy except *C. montrouzieri* was observed on *R. invadens*. The maximum temperature, minimum temperature, morning relative humidity and evening relative humidity ranged from 27 to 36 °C, 18 to 22 °C, 52 to 91 per cent and 30 to 76 per cent, respectively. There was no marked influence of these abiotic factors on the mealybug population during the study period. The decline in the mealybug population on sapota was due to the predatory activity of *C. montrouzieri*.

**KEY WORDS:** *Cryptolaemus montrouzieri*, efficacy, *Rastrococcus invadens*, sapota

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The mealybug, *Rastrococcus invadens* Williams (Homoptera: Pseudococcidae) has been reported on sapota (*Manilkara zapota* Forberg) in West African countries (Agounke *et al.*, 1988). Perusal of literature revealed the absence of any authentic record of *R. invadens* on sapota in India, though it was reported on many other plants (Butani, 1979; Narasimham and Chacko, 1988). During May 2002, *R. invadens* infestation was noticed on five-year-old sapota trees at Indian Institute of Horticultural Research Farm, Bangalore. The mealybugs confined to lower side of leaves along the primary and secondary veins sucking the sap. Several natural enemies including the coccinellid predator *Cryptolaemus montrouzieri* Mulsant were recorded on *R. invadens* in both

Africa and India (Agounke *et al.*, 1988; Narasimham and Chacko, 1988). Since, *C. montrouzieri* has been reported as voracious feeder of many mealybug species (Mani and Krishnamoorthy, 1997), it was chosen to evaluate its efficacy in the suppression of *R. invadens* on sapota.

The field experiment was conducted on five-year-old sapota cv. Cricket ball at Indian Institute of Horticultural Research Farm, Bangalore during May-June 2002. The sapota orchard consisted of 16 plants out of which 9 were found infested with *R. invadens*. The data on the population of the mealybug was recorded on five plants infested with *R. invadens*. In each plant, four shoots and in each shoot five infested leaves were chosen to count the number of mealybugs and the predators,

if any, using a hand lens (10x) at fortnight interval. The predator *C. montrouzieri* was maintained in the laboratory as outlined by Chacko *et al.* (1978). Three to four-day-old larvae of *C. montrouzieri* were released @ 30/tree on 1<sup>st</sup> May 2002 and again on 15<sup>th</sup> May. Ten leaves infested with the mealybugs were collected and kept in cloth walled cages for recording the emergence of natural enemies, if any.

The mean number of mealybugs per shoot (5 leaves) was 507.67 when the study was initiated on 1<sup>st</sup> May 2002. There was substantial reduction in the population of mealybugs on May 15 to 230.4/shoot following the first release of *C. montrouzieri*. Periodical sampling did not yield any parasitoid/predator except *C. montrouzieri* during the study period, though as many as seven natural enemies were reported earlier on *R. invadens* in India by Narasimham and Chacko (1988). The population of *C. montrouzieri* ranged from 1.32 to 3.00/shoot. Since none of the weather factors except the evening relative humidity ( $r=0.97^{**}$ ,  $P=0.01$ ) significantly correlated with the mealybug population and no other natural enemy was recorded on *R. invadens* in the present study, the reduction in the mealybug population was attributed to the predation by *C. montrouzieri*. Mani *et al.* (1995) also reported the similar efficacy of *C. montrouzieri* in the suppression of *Rastrococcus iceryoides* (Green) on mango.

## ACKNOWLEDGEMENT

The authors are grateful to Director, Indian Institute of Horticultural Research, Bangalore 560 089, for providing facilities to conduct the study.

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