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Pandharbale A.R



**ASSESSMENT OF BRISTLE BEETLE (*Mylabris pustulata* :*Meloidea*)
PEST ON IPOMOEA CARNEA FROM NORTH PUNE
DISTRICT MAHARASHTRA, INDIA**



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ABSTRACT

Bristle beetle (*Mylabris pustulata* :*Meloidea*) is polyphagous pest of many crops and weeds. Ipomea carnea (Besharam) is a fast-growing noxious weed of negligible economic value. However, it possesses polyphenols and alkaloids. It is reported that in Gunacasta Costa Rica insects from more than 40 families and 77 genera were observed feeding on extrafloral nectarines of Ipomea carnea (Besharam) a morning glory plant (Keeler K.H.1978). Ipomoea (*Ipomoea carnea*, also called *I. fistulosa*) is among the most dominant and harmful and toxic weeds that have polluted the world's tropical and sub-tropical regions including India. It is an evergreen, flowering, shrub with height ranging from 1.2 to 5 m and stem diameter between 1.5 and 5 cm. The shrub is branched, all stems of these branches are weak. It was initially used to make fences but has become very widespread due to its hardiness, high reproductive success, and very fast rate of growth. Its uncontrolled colonization of landmasses and shallow wetlands has proved threatening in terms of loss of biodiversity, loss of nutrients from fertile land and other forms of ecodegradation. The weed is so hard and flexible that it is able to successfully resist all attempts to control it by chemical weedicides. Blister beetles (Meloidea) are cosmopolitan in distribution except from New Zealand, Antarctica. They act as minor pests for some crops and as major pests for others under certain conditions in several parts of the world. In present paper survey and surveillance carried by us to investigate damage caused by Bristle beetle (*Mylabris pustulata* :*Meloidea*) to Ipomoea carnea weed from North Pune District, Maharashtra, India. This study will be

helpful for biological control of *Ipomoea carnea* weed.

KEY WORDS: *Ipomoea carnea* weed, Bristle beetle, polyphagous pest, surveillance

INTRODUCTION

Ipomoea carnea commonly called as "Besharam" in India. It is a fast-growing noxious weed of insignificant economic value. The plant *Ipomoea fistulosa* Linn. (Besharam) evergreen, medium sized shrub with milky juice, it grows to a height of 5m. It grows in dense populations along riverbeds, riverbanks, canals and other waterlogged (wetland) areas. The leaves are green, heart shaped or somewhat lanceolate and 10-25cm long. Fruits glabrous capsule; Seed silky, belonging to family Convolvulaceae. Histochemistry investigation revealed that, it possesses polyphenols and alkaloids. Experiments on *I. carnea* indicated that it possess combination of calystegines and swainsonine of 0.1%. It has been estimated that locoweeds containing at least 0.001% swainsonine are capable of producing neurological damage if consumed regularly over a sufficient period of time; the content in *I. carnea* is therefore far in excess of the level necessary to induce poisoning (Katalin *et al.*, 1999; Ikeda *et al.*, 2003; James L.F. *et al.*, 2004; Azzouz R *et al.*, 2008), therefore *Ipomoea* is toxic to cattle and human. *Ipomoea* (*Ipomoea carnea*, also called *I. fistulosa*) is among the most dominant and harmful and toxic weeds that have polluted the world's tropical and sub-tropical regions including India. It was initially used to make fences but has become very widespread due to its hardiness, high reproductive success, and very fast rate of growth. Its uncontrolled colonization of landmasses and shallow wetlands has proved disastrous in terms of loss of biodiversity, loss of nutrients from fertile land and other forms of ecodegradation. In different parts of world *Ipomoea* planted as ornamental weed. However *Ipomoea* plant is used for skin troubles successfully. The milky juice of Besharam is used for the treatment of Safed Dag (Leucoderma). Traditional peoples for treatment of skin diseases has used it. The milky juice of plant *ipomoea* has been used for the treatment of leucoderma and other related skin diseases but only external applications have been suggested due to poisonous nature of the plant. It has adverse effect on central nervous system. Also shows muscles relaxant property (Adam *et al.*, 1973; Alroy *et al.*, 1985; Asano *et al.*, 1985; Austin D.F. and Huaman Z, 1996). Bristle beetle (*Mylabris pustulata*: Meloidea) is polyphagous pest of many crops and weeds including *Ipomoea carnea* (Besharam). Not all species of blister beetles are considered as severe agricultural pests. mostly in the New World, all economic pests belonging to family Meloidae are species of vittata group (Meloinae: Epicautini) which are known. Some meloid species had been recorded as agricultural pests in the Old World such as the black oil beetle, *Meloe proscarabaeus* Linnaeus (Ali *et al.*, 2005). as pests of garden and agriculture crops (Adams and Selander, 1979) and cause economic damages to alfalfa, potato, tomato, soybeans, sugar beet, cotton and a variety of money crops and vegetables. It is reported that in Gunacasta Costa Rica insects from more than 40 families and 77 genera were observed feeding on extrafloral nectarines of *Ipomoea carnea* (Besharam) a morning glory plant (Keeler K.H. 1978). In present study we observed Bristle beetle (*Mylabris pustulata* :Meloidea) feeding on the petals of *Ipomoea carnea* plant. The observations were carried in North Pune District during October and November. At end of September *Ipomoea carnea* shows early flowering stage with nectarines heavily infected by beetles including Bristle beetles and Tortoise beetles. Tortoise beetles are observed feeding on leaves while Bristle beetles on flowers and nectarines

MATERIALS AND METHODS:

Insect Visitors or Insect pest (Bristle beetles) from Family Meloidae have been systematically observed feeding on *Ipomoea carnea* Jacq. The plant is commonly called as morning glory in Costa Rica and Besharm in India. Bristle beetles feeding on *Ipomoea carnea* were Photographed with Sony digital Camera and then the insects are collected with insect collecting net, they are taken to the laboratory and identified with identification key. Collected insects are released in the field after study. Observation visits are made in study sites at alternate day in October and November.



Fig.1 Bristle beetle (*Mylabris pustulata* :Meloidea) feeding on flower of (*Ipomoea carnea*) weed



Fig.2 Tortoise beetle (*Aspidomorpha milliaris*) larva feeding on leaves of (*Ipomoea carnea*) weed

RESULT AND DISCUSSION:

Bristle beetle feeding on *Ipomoea carnea* are listed in Table 1. We have observed and collected 386 Bristle beetles *Mylabris pustulata* and 205 Tortoise beetle (*Aspidomorpha milliaris*) from study site. Bristle beetles were observed feeding on Nacteries & flowers of *Ipomoea carnea* weed, while Tortoise beetle (*Aspidomorpha milliaris*) on leaves. We also observed larvae of bristle beetle (*Mylabris pustulata*) were feeding on aphids.

Table 1: Insects (Bristle beetle) feeding on (*Ipomoea carnea* Jacq. Family: convolvulaceae) at North Pune District.

Order	Family	Number of Bristle beetle(pest)feeding on <i>Ipomoea carnea</i>	Infected part of <i>Ipomoea carnea</i>	Period of Pest Infection	Role
Coleoptera	Meloidae (Bristle beetle)	206	Nacteries & flowers	October	Predaceous On flowers and nectiesries
Coleoptera	Meloidae (Bristle beetle)	180	Nacteries & flowers	November	Predaceous On flowers and nectiesries
Coleoptera	Chrysomelidae, (Tortoise beetle)	145	Leaves	October	Predaceous On leaves
Coleoptera	Chrysomelidae, (Tortoise beetle)	105	Leaves	November	Predaceous On leaves

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