



Full Length Review Article

DIFFERENT INSECT PESTS IN MUGA HOST PLANT SOM (*PERSEA BOMBYCINA*) ECOSYSTEM

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ABSTRACT

The Muga silk is one of the most precious silk produced by *Antheraea assamensis* is monopoly of Assam. The silk is very famous due to its unique golden yellow colour and lustre of the fibre. The Muga silkworm is present only in the North-Eastern region of India. This silkworm primarily feeds on Som plant (*Persea bombycina*) but some other plants like *Litsea polyantha*, *Litsea salicifolia* and *Litsea citrata* are used as host plant of the silkworm. The som plant (*Persea bombycina*), is an aromatic non deciduous tree with alternate leaves that are varying size and shape. The host plants play an important role in production of quality silk. The Som plant is attacked by various insect pests which leading to reduction of quality silk production, hence there is a need of controlling these pests to increase the quantity and quality of raw silk production.

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INTRODUCTION

The golden yellow Muga silk, one of the most precious silk which is the monopoly of Assam, popular on earth due to its unique lustre and colour of silk fibre. This silk is produced by Muga silkworm *Antheraea assamensis* is present only in the North-Eastern region of India. Muga culture is closely related with the culture and heritage of Assam (Tikader *et al.*, 2013). The Muga silkworm primarily feeds on Som (*Persea bombycina*); besides this Soalu (*Litsea polyantha*) also the primary host plants while Dighloti (*Litsea salicifolia*) and Mejankori (*Litsea citrata*) is the secondary host plants of this silkworm (Bhattacharya *et al.*, 1993; Tikader and Rajan, 2012).

These plants are abundantly distributed in Assam, Meghalaya, Arunachal Pradesh, Nagaland, Manipur, Mizoram and Tripura due to availability of favourable climate. Som plant (*Persea bombycina*), is an aromatic non deciduous tree with a height of about 20 meters when fully grown. The bark is rough with grey coloured and branches are spreading sideways. The young shoots are covered with simple straight hairs. Leaves are alternate with varying size and shape. The upper surface are almost hairless, lower one is lightly silky and hairy (Rahman *et al.*, 2011). Host plants play an important role in production of quality silk. Good and healthy plants give rise to good returns of raw silk (Tikader *et al.*, 2013).

Even though agro climatic conditions of Assam favourable for growing of Muga silkworm, this region is not at a large progress in Muga sector. One of the important reasons for slow progress of Muga silk industry is the lack of healthy food plant due to pest infestation. Being a perennial tree Som plant is very prone to attack by different kinds of insect pests hence there is a need of controlling these pests with a proper method. Many insect pests were recorded on Som plants in NE region of India and listed the major insect pests as gall insect (*Aspondylia* sp), stem borer (*Zeuzera indica*), leaf defoliating beetle (*Apogonia* spp), aphid, leaf miner (*Phytomyza* sp), leaf roller, red tree ant (*Oecophylla smaragdina*) etc.

Stem borer (*Zeuzera indica*)

Lepidoptera: Cossidae

The stem borer is one of the most damaging pests of som plant. Larval stage is the active feeding stage; larva bores on the trunk and feeds on the tissues. The pest makes holes on the trunk. The female moth lay egg on the stem of the plant and larva crawl to stem after hatching. The eggs are oval shaped, pale yellow in colour with 0.4 to 0.6mm in size (Bhuyan *et al.*, 1992). Stem borer can control by plugging the holes made by the larvae with cotton ball soaked in 5 to 15 percent plant extract i.e., extracts of *Azadiracta indica*, *Ricinus communis* etc., followed by mud plastering. The chemical used for managing this pest is Nuan 1.5 percent (Das, 2014).

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Leaf defoliating beetle (*Apogonia* spp)**Coleoptera: Scarabaeidae**

Leaf defoliating beetle (*Adoretus* sp. and *Apogonia* sp.) is a pest of Som, emerge from the soil with the onset of monsoon showers in the month of May to June. The grub feeds on both tender and matured leaves and makes smaller holes or perforation of leaves. The beetles generally lay eggs in the soil and the newly hatched grub starts feeding on roots resulting wilting of the plant; while the adult feeds on leaves (Reddy, 2011).

Gall insect (*Aspondylia* sp)**Diptera: Cecidomyiidae**

The Gall insect causes extensive damage to the Som plant by develops malignant tumour like growth in leaves induced by toxic saliva secreted, resulting the leaves unsuitable for feeding by silkworm. The gall is formed both the sides of the leaves, but most are observed in upper side. The oval shaped galls are measured about 0.5 to 0.9 cm in diameter. The newly formed gall is light green which turned dark brown during the time of maturity. The insect developed up to adult inside the gall and emerges by making small holes on the top of the gall (Saikia, 1998).

Leaf miner (*Phytomyza* sp)**Dipteral: Agromyzidae**

The leaf miner is a major pest of Som. The adult female leaf-miners produce characteristic feeding marks on leaves and lay eggs into some of these marks. The larva feeds in the leaf leaving 'mines' which grow rapidly in length and width. In severe cases the leaf area is reduced enough which affect the crop yield. The larvae are not come out from the leaf and forms puparium within the mines form by the insect. Leaf miner can be effectively managed by plucking and burning infected leaves and spraying 0.2 percent Rogor (Saikia, 1998).

Aphid (*Aiceona robustiseta*)**Homoptera: Aphididae**

Aphids attack tender leaves or young shoots of som plant. They sucked cell sap and causes extensive damage to the plant. The aphids mainly damage to developing buds and tender leaves. Both nymph and adult aphids are lives in colonies and suck saps. aphid infestation results curling of leaf and reduction the size of leaves. Honeydew secretion of aphids facilitates growth of saprophytic fungus causing growth of black sooty mould on the leaves.

Red tree ant (*Oecophylla* spp)**Hymenoptera: Formicidae**

The red tree ant is a minor pest of som plant. It is unique among the other ants that the species construct nests largely made up of silk produced by the larvae. The nests contain numerous eggs as well as adult insect along with larvae and pupae. The damage by this insect is negligible (Cole *et al.*, 1948).

Conclusion

From the present investigation it is concluded that, different insect pests become a major threat for Muga silk industry because of severity of damage to the host plant. Detailed study of such pest device effective pest forecasting as well as pest management schedule. Again study of natural enemies of these pests in combination with other methods would lead to find out an effective eco-friendly pest management techniques.

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