A report on the occurrence of the Teak sapling borer, *Sahyadrassus malabaricus* (Moore) (Lepidoptera: Hepialidae) attacking Coffee

K. Tintumol*, C.K. Vijayalakshmi, P. Abdul Rahiman and P.K. Vinodkumar**

*Regional Coffee Research Station, Chundale, Wayanad, Kerala, India 673123
**Central Coffee Research Institute, Chikmagalur, Karnataka, India

Email: tintuck@gmail.com

**Corresponding Author**

K. Tintumol
Regional Coffee Research Station, Chundale, Wayanad, Kerala, India 673123
Email: tintuck@gmail.com

Article History
Received on 24 December, 2013; Received in revised form 16 January, 2014; Accepted 10 February, 2014

**Abstract**

Caterpillar of swift moth, *Sahyadrassus malabaricus* (Moore) (Lepidoptera: Hepialidae) has been reported as a pest of several forest trees. It damages the saplings of various trees by bore into the stem, make tunnels and break at the point of entry in the long run. Present paper discusses the record of the pest on various coffee species. Recently it has been reported from the robusta variety (*Coffea canephora*) from the same location and attacking *Glyricidia* in the farm of Regional Coffee Research station, Chundale. Morphology, host plants, life cycle and damage are briefly described in the paper.

**Keywords**: Teak, *Sahyadrassus malabaricus*, Swift moth, Phassus borer and *Coffea canephora*.

**Introduction**

*Sahyadrassus malabaricus*, the Teak sapling borer, often called “Phassus borer” is the caterpillar of a swift moth. The moth is endemic to Peninsular India. It has long been recognized as a borer of several species of plants (Hampson, 1892; Lefroy, 1909; Fletcher, 1914; Beeson, 1941; Ayyar, 1963). Incidence of the pest on coffee was first recorded during 1982 on the suckers of 4 year old *Coffea canephora* at the RCRS Chundale farm. During 1988 another incidence was noticed again (Balakrishnan et al., 1988). Another incidence on *C. arabica* (Cauvery) coffee has been recorded from Coffee Demonstration farm Kattappana. Though it is not considered as a serious pest on crops including coffee, recently it has been observed attacking two year old robusta coffee extensively at Kattappana. Recently it has been noticed attacking *Glyricidia* in the farm of the Regional Coffee Research station, Chundale.

**Plants attacked by *S. malabaricus* other than coffee**

The insect is distributed throughout Kerala and has a wide host range over 40 species belonging to 22 plant families. The caterpillars were abundantly attacked on *Clerodendrum viscosum*, *Trema orientalis* in and around coffee plantation *Casuarina equisetifolia*, *Chromolaena odorata*, *Cytharexylum spinosum*, *Delonix regia*, *Erythrina indica* and *Gliricidia maculate* also attacked by the pest. Among the forest plantation species in addition to teak, *Eucalyptus sp.* *Gmelina falcata* and *Calliandra calothyrsus* were found attacked.
Developmental stages

Habit and habitat of earlier stages of caterpillars are less known. It is assumed that the early stages of caterpillars harbor inside loose soil or inside weeds. The fully grown caterpillar is dark brown in colour. Damage is caused by the caterpillar stage of the pest. Length of caterpillar varies depend on the type of host plant. Caterpillars recovered from coffee plants measured 2-3 cm in length and 0.25 to 0.35 cm in width. Those collected from *C. viscosum* and *T. orientalis* were larger upto 7 cm long and 0.8 cm wide. Pupae is dark brown

Symptoms of attack and damage

The caterpillar cause damages to saplings of various tree species by boring into the stem causing breaking at the point of entry. It bores into the stem and lives inside the tunnel along the pith. Mouth of the tunnel will be covered with a thick mat of wood particles spun together with silk underneath which the caterpillar feeds on the callus tissue that grows as the result of continuous browsing. In rare cases the stem is ring barked resulting in drying up of the sapling or the stem snaps at the tunnel mouth region. The tunnel is made only as a shelter. Feeding take place at night under cover of the particle mat cover.

Beeson in 1941 in his book on the forest insects of India has given details of the life history and habits on the insect. Nair (1982) has done extensive studies on the life history, ecology, pest status and control of this pest. The family Hepialidae called swift moth is a primitive family of Lepidoptera consisting of about 300 species of hepialids. Out of the 14 species of hepialids recorded in India only *S. malabaricus* has so far been recorded from Southern India.

Life cycle

The insect has an annual life cycle with moths emerging between mid March to mid May. The habits and habitats of early stage caterpillar remain largely unknown. It is suggested that early instars are creamy white in colour survive on weedy ground vegetation and migrate to young plantations later. Most caterpillars establish in saplings by mid August although migration may continue up to November.
Infestation was heavier in plantations with dense growth and in plantations near stream banks. Inspite of the potential of each female moth and the early caterpillar instars develop in ground vegetation before they migrate to the host saplings. Evidently considerable morality occurs between the egg storage and the establishment of caterpillar in the host.

Management

Generally it is difficult to control borer because insecticides cannot reach their concealed habitat easily. Methods recommended against this pest in the past included physical killing with a wire probe, injection of insecticide at the tunnel, tar plugging etc. applying the insecticide at the tunnel mouth after pulling off the particle mat cover. The insecticide acts as a contact poison when the caterpillar works on the treated surface to rebuild the cover and later as a stomach poison when it feeds on the surface. Quinalphos 25 EC at 0.5% ensures complete mortality when applied at the tunnel mouth. Cultural practices advised are:

- Avoid excessive weed cover particularly during June, July and August,
- Where Trema orientalis and Clerodendrum viscosum occur within or in the vicinity of the, plantation retain them until late November to attract the Caterpillar and then cut back Trema and uproot Clerodendrum to destroy the Caterpillar population,
- The pest is originally confined to the mountainous forest area. It appears to be spreading gradually to the plains aided by the colonization of species like T. orientalis and C. viscosum and plantations of Teak and Eucalyptus in the cleared forest area. Infestation was found to be high in plantation with dense weed cover. Clean cultivation with timely weeding is expected to reduce the incidence. In coffee, it is only a sporadic incidence due to the proximity of forest areas.

Acknowledgements

The authors thankfully acknowledge Mr. Kanthaswamy, Senior Liasion Officer, Technical Evaluation Centre, Coffee Board, Kattappanna for the cooperation extended.

References

Beeson, C.F.C. 1941. The ecology and control of forest insects of India and neighboring countries. Govt. of India, New Delhi.