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A new record of *Streblote helpsi* Holloway (Lepidoptera: Lasiocampidae) as pest on *Avicennia marina* from the mangroves of Maharashtra, India

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Abstract

Avicennia marina the common species found in the mangroves of Mumbai region is often attacked by different defoliating pests. Pest surveys were made to record the occurrence of pest problems in the mangroves of Airoli and Vashi creek during the period from 2017 to 2018. The study revealed a new report of defoliating pest *Streblote helpsi* Holloway on *A. marina* in this region. This caterpillar larvae causes moderate to severe level of damage to the plants both in nursery, plantation and in natural mangrove eco-system. The intensity of attack was assessed and the biology of the pest was also studied and reported.

Keywords: *Avicennia marina*, *Streblote helpsi*, mangrove, pest

1. Introduction

Mangrove forests are the distinct kind of habitat for flora as well as fauna and most productive ecosystems of the world. India has 6,749 km² of mangrove cover, the fourth largest mangrove area in the world [1]. In which the east coast habitats of mangroves zones having a coast line of about 2700 km, facing Bay of Bengal, west coast habitats zones with a coast line of about 3000 km, facing Arabian sea, and island territories zones of mangroves with about 1816.6 km coastline [2]. In Maharashtra state about 52 creeks were present across the 720 km coastline, have developed mangrove habitats of which 18 are major ones [3]. With more than 19 mangrove species are found in Maharashtra *Avicennia marina* is a common species available in all the mangrove areas as a dominant species [4]. This species is often found attacked by many of the insect pests particularly the defoliating pests during the rainy season. Though a reasonable literatures on the insect diversity of mangrove species are available, very less information on the status of insect pests and its impact on mangrove species in the state of Maharashtra is available. Therefore a study was conducted to record the defoliating pest problems in this region. During the surveys conducted to assess the pest problems of mangrove species in Airoli and Vashi creek revealed the infestation of the hairy caterpillar *Streblote helpsi* for the first time in this area.

2. Material and Methods

Periodical survey at various mangrove areas in Thane district was undertaken in 2018 to record the insect pest attack. (Airoli Natural mangroves -N 19° 14'76.5" E 072° 98'43.9", Ghansoli Plantation- N 19° 11'50.9" E 072° 99'17.3"). Different defoliating pests were collected and preserved. These insects were authentically identified by the subject expert. Intensity of attack was assessed by the level of incidence of the insect pests and percentage of the damage/extent of damage caused. Laboratory bioassays were also conducted by using the biopesticide Hy-Act. by using different concentrations. Four concentrations of 0.25%, 0.50%, 0.75% and 1% were prepared and tested on the targeted pest. Ten larvae were used for each concentration tested with five replications.

3. Results and Discussion

The defoliator *S. helpsi* was observed as a seasonal and important pest in Airoli and Ghansoli

mangrove areas. It attacks *A. marina* (Fig.1 a) in higher intensity of 30-35% during the rainy season. The larvae vigorously feed the tender and matured leaves during their third and fourth instar stages. The adult males were 20 to 23 mm wing span and the females were 30 to 37 mm (Fig.1 d). The males are dark brown in colour with the hindwing distal margin straight to convex rather than slightly concave. A faint antemedial posterior to the cell was present and a pale dash at the centre of the costa. The females were lacking pale fasciae on the wings or having them more pronounced. Full grown caterpillars were pale brown in colour with small black spots on each segment and long lateral tufts of ochreous hair. Larvae when fully grown pupate in cocoons on leaves (Fig. 1c). Female lays the eggs in patches and the eggs were oval in shape with the length of about 1.3mm to 1.5mm and width 1.8mm to 2 mm. The eggs were whitish gray in colour with pigmented (Fig.1 b). The average duration required to complete a life cycle ranged from 50 to 55 days. *S. helpsi* was first described by Holloway^[5] on *Casuarina equisetifolia* as

the host plant at Borneo. This was reported as pest on African Mahogany, *Khaya senegalensis* in Sandakan, Sabah^[6]. This pest was reported on *Sonneratia caseolaris* as a new host in Malaysia^[7]. This pest incidence occurred from June to August in which June and July the intensity was moderate (Graph.1). The botanical biopesticide Hy-Act (bio-product derived from *Hydnocarpus pentandra*) at the concentration of 1% was found effective in controlling pest causing 70 to 80 percent mortality in laboratory condition. Application of plant derived products in pest management is gaining importance in the recent years. Extract of *Azadirachta indica* and *Jatropha curcas* in different concentrations were tested for their antifeedant property against the *Papilio demoleus* larvae and found effective^[8]. The botanicals from about 30 plant species were screened out against various forest insects. Efficacy of the seed oils of Neem, Pongamia and *Jatropha* exhibited moderate level of mortality. Neem oil was better than the others^[9].

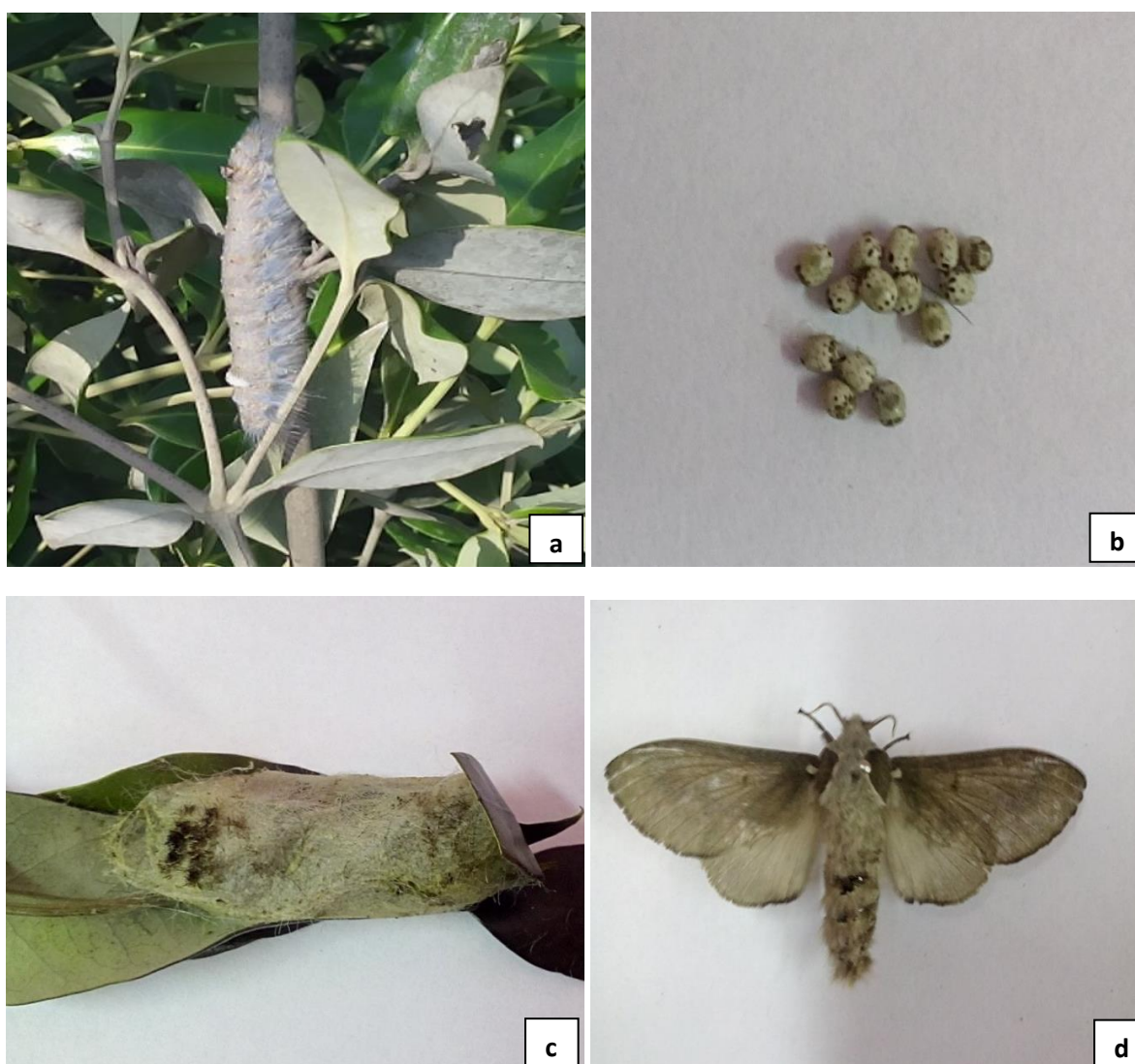


Fig 1: *Streblothe helpsi* on *Avicennia marina*

(a) *Streblothe helpsi* attack on *Avicennia marina* (b) Eggs of *S. helpsi* (c) Pupal cocoon of *S. helpsi* (d) *S. helpsi* adult moth

4. Conclusion

Though lot of information on the entomo faunal diversity of mangrove species are available, very few information on the status of defoliating and its impact on mangrove species in the

state of Maharashtra is available. Therefore this study was undertaken to record the pest problems on the important mangrove species like *A. marina*, *A. officinalis*, *Sonneratia alba* and *S. apetala*. The observations revealed that *S. helpsi*

is an important defoliating pest causing severe damage to the mangrove plants and it can be controlled by using botanical biopesticides Hy-Act. Further research is required to study the effectiveness of more biopesticides and microbes to control this type of defoliating pests in field condition also.

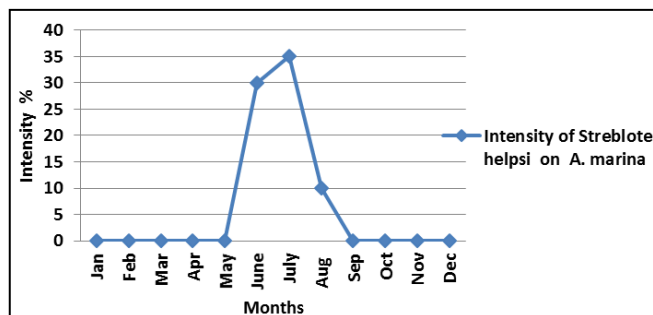


Fig I: Intensity percentage level of *Streblote helpsi* on *A. marina* during the year 2018

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