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SHORT COMMUNICATION

BIOLOGY OF PLANT HOPPER, *Hansenia glauca.* Kirby INFESTING JAMAN, WATER APPLE AND GUAVA

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INTRODUCTION

Jaman (Madan), *Sizigium cumini* and water apple (pini-jambu), *Syzigium samarangense* are not cultivated on commercial scale and are under-utilized. All parts of jaman tree have medicinal value and fruits are edible. The juicy fruits of water apple are popular among children. In India, many pests were reported to infest jaman and water apple (Nayar *et al.,* 1981; Chanduwat, 1990 and Arya, 1993). However, there are no published reports about the pest prevalent in Sri Lanka.

Leaves of jaman and water apple trees at Gannoruwa, were observed to be heavily infested with a plant hopper which had been first collected from Peradeniya, Sri Lanka in 1900 on *Eugenia malaecensis*, and was identified as *Hansenia glauca* Kirby (Hemiptera: Fulgoroidea) and later on *Eugenia jambos*. The specimens were deposited in the insect reference collection of the Department of Agriculture (DOA) with reference nos.2003, 4112, 6708. There is no published information available on this pest either in Sri Lanka or elsewhere. Therefore, present study was carried out to investigate the biology of the pest.

MATERIALS AND METHODS

This study was conducted at the Horticulture Crop Research and Development Institute (HORDI) Fruit Orchard Unit 1 at Gannoruwa during the period 2004 to 2006.

Laboratory study

Ten jaman leaves containing freshly laid egg masses were collected from the field and brought to the laboratory. The nymphs that emerged from each egg mass were transferred separately into ten petri dishes at the rate of 10 nymphs per petri dish each lined with damp filter paper containing an immature, uninfested jaman leaf. The petri dishes were placed in the laboratory at 30°C±1°C, 70-90% RH. The insects were observed daily under microscope and changes in life stages were recorded. Insects were transferred to fresh leaves as and when necessary.

Field study

Thirty freshly laid egg masses on the three host plants in the field were labeled. These egg masses were observed twice a week and records taken at hatching, larval development and adult emergence.

RESULTS AND DISCUSSION

Biology

Eggs: Are translucent, white, and cylindrical and laid on the lower surface of the leaf in groups of 20 to 60 (average 44) in parallel lines (Plate 1). Oval shaped egg masses are covered with white waxy scales. Under laboratory conditions, the incubation period varied from 3-7 days while in the field it unusually took a long time (20-64 days). This phenomenon needs to be studied further.

Nymphs: There are five nymphal instars in the life cycle. First instar nymph is white, bare bodied with long legs and prominent black eye spots. The abdomen is upturned. During the development of the nymphal instars (Plate 2), they exude white, waxy exudates in the form of abdominal filaments on their body until white feathery filaments cover the entire body. With the development their body colour changes to yellow and orange. Last instars (Plate 3) are light greenish white. Thorax is large and broader than the abdomen and covered by the developing wing pads. At the end of the abdomen there are thick, short and long filaments. The nymphs mostly stay in an aggregated colony concealed within their casted waxy filaments (Plate 4).
In the laboratory, duration of the nymphal period ranged from 15- 21 days. In the field it ranged from 30-45 days.

Adults: Adult (Plate 5) is a medium size insect with bluish white wings, triangular in shape and moth like in appearance. It has two pairs of wings covered with pure white powdery substance. Their broad triangular wings are folded to form a steep roof over the body. Wingspan is 10 -15 mm. with an average of 12.6 mm. The adult plant hoppers were mostly associated with the leaves having the nymph masses. They were also seen resting in rows along the twigs and on large veins of the leaf among the nymphs (Plate 6). They suck sap from leaf veins, immature twigs and also from the developing flowers and fruits.

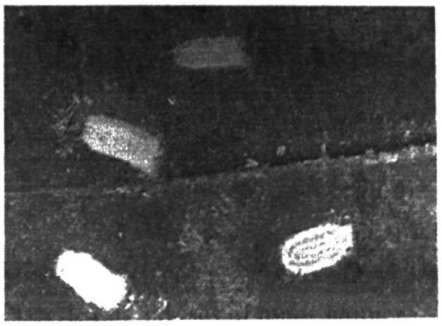

Plate 1. Egg masses of plant hopper

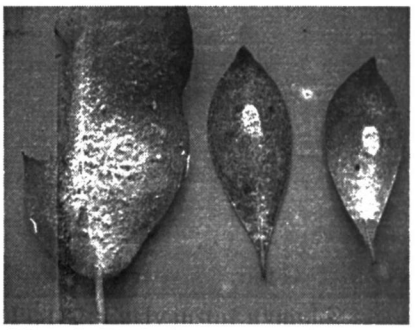

Plate 2. Early instar nymphs

Plate 3. Last instar nymph

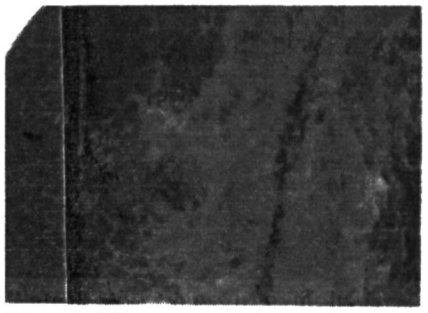

Plate 4. Waxy mass of nymphs

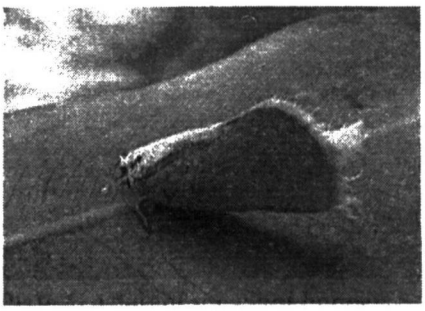

Plate 5. Adult of the plant hopper

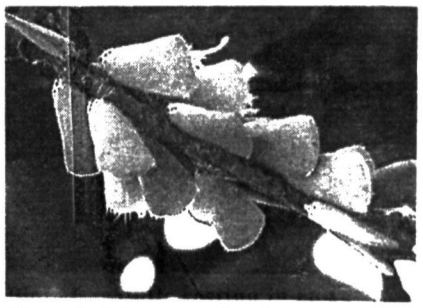

Plate 6. Adults resting in rows

Host plants

Both adults and nymphs were found feeding on jaman, water apple, guava and chinese guava. Although guava and chinese guava were infested with egg masses and early instars of nymphs, later instars and adults could not be seen abundantly. All developmental stages were found infesting heavily on jaman and water apple trees indicating that jaman and water apple are the main host plants of this pest.

Damage

Feeding of the large number of nymphs on the leaves caused yellowing of leaves and the damaged leaves eventually dropped. Black sooty moulds grow on the upper surfaces of leaves and on flowers and fruits due to honey dew secreted by the insects. Adults and nymphs suck sap from flowers

and fruits of water apple. Due to their feeding habit, the damaged young fruits dried and dropped off. Mature fruits were malformed. This resulted in the reduction of yield and fruits were unmarketable.

CONCLUSIONS

The insect pest that damages jaman, water apple and guava having bluish white triangular wings covered by a powdery substance and resembling a medium sized moth is the plant hopper, *Hansenia glauca* Kirby. Wings are held like a steep roof on the body while resting. The adults characteristically sit in rows along the twigs of the trees while resting. Cylindrical, white, translucent eggs covered with white waxy scales are laid in oval shaped masses on the lower surface of leaves. There are five nymphal instars in the life cycle. White, feathery waxy filaments cover the entire body of the nymph. They are active and mostly in an aggregated colony covered by their casted skins and feed on leaf sap. The damaged leaves turn yellow and eventually drop. Honey dew secreted by the insects results in growth of sooty mould on the leaves, flowers and fruits. Adults and nymphs suck sap from developing fruits resulting in the damaged fruits being malformed or to dry up and fall. Jaman and water apple are the main host plants of the pest.

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