

# A NOTE ON THE BIOLOGY AND HABITS OF *RICANIA FENESTRATA* FABRICIUS, A NEW PEST ON JASMINE

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## INTRODUCTION

JASMINE (*Jasminum flexile*, Vahl.—Var. *travancoreense*) is an extensively grown flowering ornamental plant both in backyards and in flower gardens for its economically important flowers. It is comparatively free from the attack of many insect pests. But in recent years *Ricania fenestrata* Fabricius (Ricanidae, Hemiptera) was noted to assume serious proportion on this plant around Bangalore.

## HOST RANGE

Distant and Green (1906) collected specimens of *Ricania fenestrata* in Trivandrum, Ceylon, Kandy and Peradeniya. Hutson (1919) reported it as one of the minor pests of tea in Ceylon. Light (1929) noted its occurrence on tea along with *R. speculum*, Walk, in Ceylon. Beeson (1941) has quoted from the work of Chatterjee and Bose that this insect occurs in South India on the forest plants like *Canthium didymum*, *Santalum album* and *Zizyphus aenoplia*. During the summer months of 1952 and 1953 the writers noted it in pest form on Jasmine (*Jasminum flexile* Vahl.) around Bangalore for the first time in South India. They also observed it occasionally on other garden and vegetable plants like *Aganosoma dichotoma*, *Jasminum auriculatum*, *Erythrina indica*, *Citrus decumana*, *Rosa centifolia*, *Dahlia variabilis*, *Canna indica*, *Solanum melongana*, *Lycopersicum esculentum*, etc., particularly when they are closely situated to Jasmine.

## NATURE OF DAMAGE

As the adults have the habit of inserting their eggs within the tissues of tender stems and leaf midribs by making slits with their ovipositors, the tender portions wither away. Large

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number of nymphs of all instars and adults cluster around twigs and leaves and suck the sap of the plant causing disfiguration and later dying up of these parts. In case of severe infestation the entire plant suffers and dries up.

#### LIFE-HISTORY

*Eggs.*—The adult female selects suitable places on tender shoots, petioles of leaves and midribs of leaflets and inserts the eggs within the tissue. The eggs are deposited individually in linear slits made by the ovipositor. These slits are commonly in a single row and frequently in more than one row, and the eggs are about 0.5 mm. apart from each other. Each egg is covered by a frothy mass and white hairy structures which indicate the position of the eggs. The number of eggs in a row varies from 4 to 26. They are found deep in the tissue of tender parts and more superficially in the tissue of harder twigs.

The egg is oval, creamy white and smooth with a soft chorion. Size is small, the average length being 0.63 mm. and width 0.30 mm. The incubation period lasts for 23 days in the months of May to June.

*Nymph.*—The newly-hatched nymph is tiny, measuring about 0.68 mm. in length and 0.35 mm. in breadth at the widest region. It is pale green in colour with two cottony anal brushes. It is very active, wingless and jumps when disturbed. Large number of nymphs congregate and suck the sap of the plant. Prior to moulting, the nymph is seen to be dull and lethargic and soon regains activity after moulting. Each nymph normally moults five times before attaining the adult stage. The fifth instar nymph casts its skin and forms the adult. A large number of white cast skins can be observed on and under the infested plants. The duration of the first instar lasts from 5-9 days. In the second instar it grows bigger in size and the period lasts from 5-6 days. The third instar lasts from 6-7 days, the fourth 8-11 days and the fifth from 13-16 days. The fifth instar nymph soon after the fourth moult measures 4 mm. long and 3 mm. wide. The size increases in each instar. The wing pads appear in the third instar and the wings are fully formed after the fifth moult and the adult formation is completed. The anal white hairy structures appear like a fan bent over the body of the nymphs and completely cover them. It is only when disturbed, the fanlike structure is bent backwards and the nymph jumps violently.

Under the room temperature ranging from 77° to 86°F. during the months of June-August, the nymphal stage lasts from 39-44 days and the life-period from the date of egg-laying to the date of formation of adult varies from 62-67 days in contrast to the quotation made by Beeson (1941) from the work of Chattarjee and Bose wherein it is stated that 'it moults four times and has a total life-cycle of 90-100 days, egg stage 21-23 days, first nymphal stage 17-20 days, second 17-18 days, third 18-20 days, fourth 19-20 days in South India'. Date of moulting and duration of the several instars are shown in the following table for a series of five individuals.

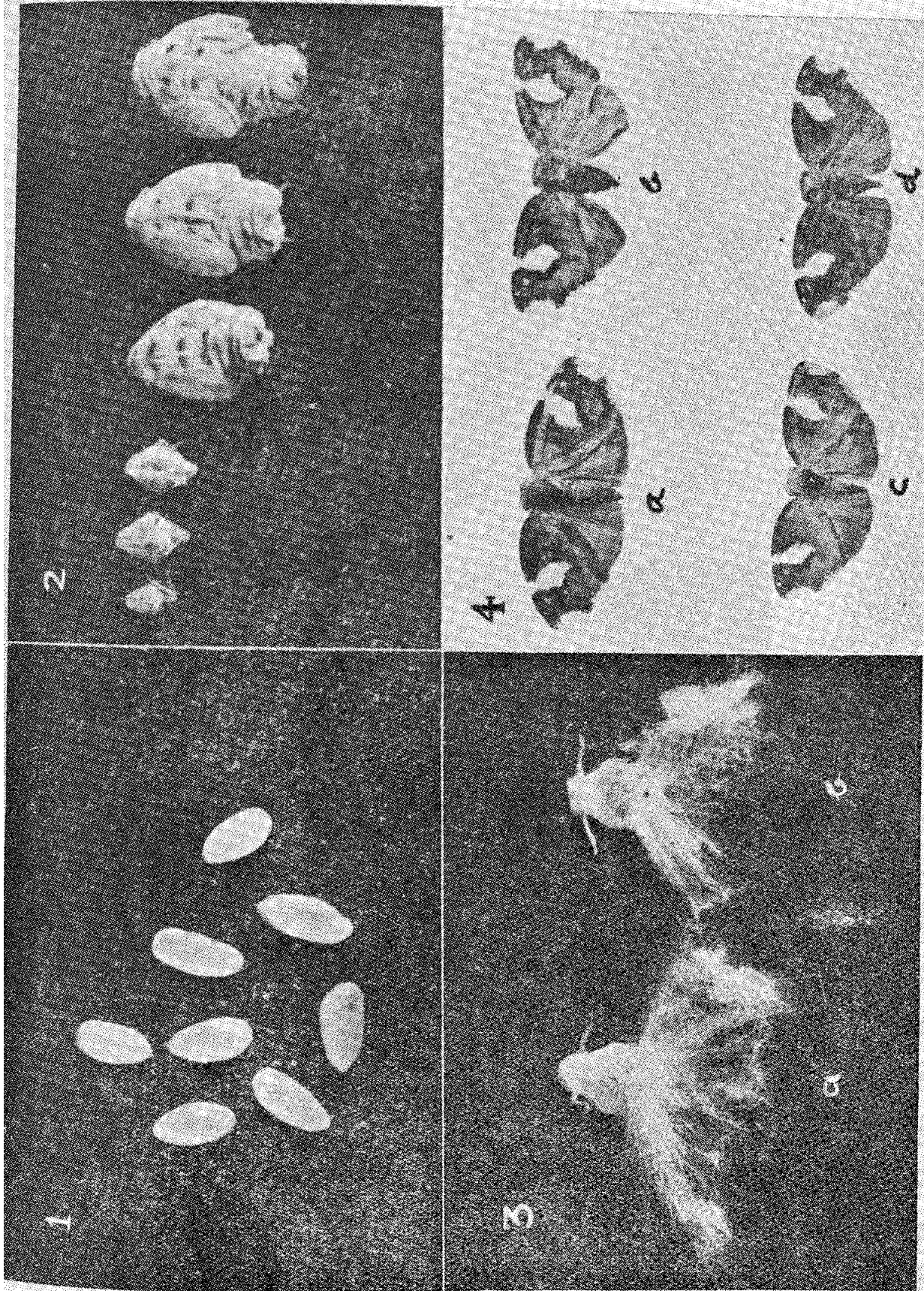
TABLE I

*Date of moulting and duration of several instars*

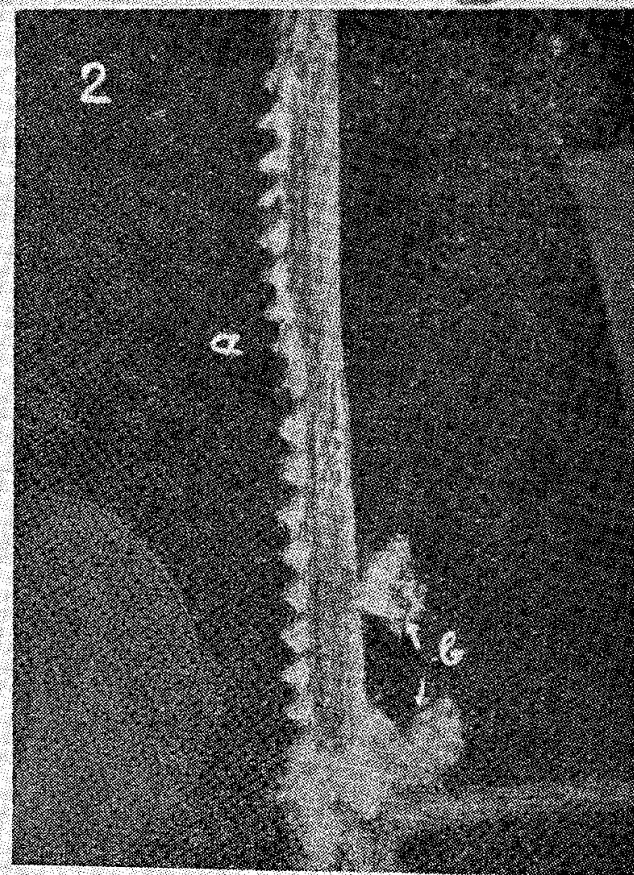
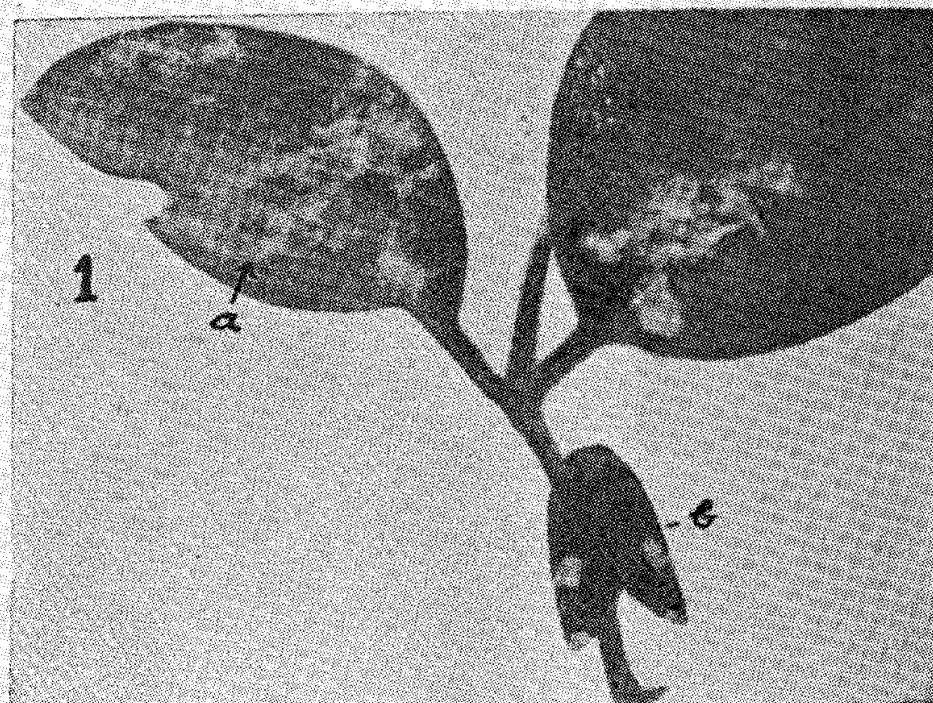
Sl. No.	Hatching and 1st Instar	1st Moul and 2nd Instar	2nd Moul and 3rd Instar	3rd Moul and 4th Instar	4th Moul and 5th Instar	5th Moul and Adult	Duration of Nymphal Stage
1	21-6-'52 (5)	26-6-'52 (6)	2-7-'52 (6)	8-7-'52 (8)	16-7-'52 (14)	30-7-'52	30 days
2	" (5)	" (6)	" (7)	9-7-'52 (8)	17-7-'52 (16)	2-8-'52	42 "
3	" (9)	30-6-'52 (5)	5-7-'52 (6)	11-7-'52 (10)	21-7-'52 (14)	4-8-'52	44 "
4	" (8)	29-6-'52 (6)	" (6)	" (11)	22-7-'52 (13)	"	44 "
5	" (7)	28-6-'52 (6)	4-7-'52 (6)	10-7-'52 (10)	20-7-'52 (13)	2-8-'52	42 "

*Adult.*—Newly-formed adult is blackish brown in colour, the body and wings being dark except for irregular semi-transparent patches on the wings, thus presenting a mottled appearance. Distant (1906) has described the adults. The female is a little larger in size than the male. On wing expansion the female measures 20.0 mm. and the male 18.00 mm. and from vertex to the tip of the abdomen the female measures 8.0 mm. and the male 7.0 mm. Adults are observed in the fields during March-September. Copulation takes place as in the case of moths, the ends of the abdomen being united with the heads of the two sexes in the opposite direction. Copulation generally takes place in the morning and lasts for more than 2 hours.





FIGS. 1-4. Different stages and cast skin of *Acania fenestrata*: 1. Eggs—exposed and magnified; 2. Nymphs without anal tufts (anal tufts were shed immediately after the live nymphs were chloroformed); 3. Cast skin with anal tuft. *a*. Dorsal view, *b*. Ventral view; 4. Adults: *a*. Female—dorsal view, *b*. Female—ventral view, *c*. Male—dorsal view, and *d*. Male—ventral view.



FIGS. 1-2. *Ricania fenestrata* on Jasmine: 1. A portion of an infested twig: *a*. Nymphs and cast skins on the leaf, *b*. Adult bug; 2. A row of eggs on the twig: *a*. Eggs in the tissue with covering on, *b*. Nymphs with anal tufts.



## CONTROL

*Natural Enemy.*—Spiders were found to web around the infested parts and ensnare all stages of the insect and feed on them, thus checking the insect population to some extent.

*Cultural.*—Infested parts can be easily made out by the indications of egg slits. Such parts can be systematically pruned and burnt.

*Chemical.*—Dusting with 5 per cent. benzene hexachloride powder on nymphs and adults was found to be effective in controlling the pest.

## SUMMARY

*Ricania fenestrata* has been noted for the first time as a pest of Jasmine in South India. Eggs are laid inserted in the tissues of twigs, petioles and midribs. Incubation lasts 23 days. The nymphs are whitish-green with fan-like white hairy structures at the tip of the body. They moult five times and the nymphal stage lasts 42.2 days on an average. The total life-cycle occupies 63-67 days.

The pest can be controlled by pruning the infested parts indicated by egg slits and burning them and also by dusting 5 per cent. BHC powder on the nymphs and adults.

## ACKNOWLEDGEMENT

The insect was identified by the authorities of the Commonwealth Institute of Entomology, London, and the photographs were made by Sri. P. R. Raghuram Pillay, Artist, Department of Agriculture. The writers feel grateful to them and to Sri. B. Krishnamurti, Government Entomologist, for kindly affording facilities and encouragement.

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