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Insects and Mites Affecting Jasmine in the Madras State

by

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Seven insects were recorded by Ramakrishna Ayyar (1927, 1940) as affecting the jasmine plant in the Madras State. The distribution, however, given for two of these fall outside the present limits of the State. There has been no further work to evaluate the injury to the crop by insects or mites. Observations made during the last one year showed that there are several insects and mites which are capable of causing severe injury to the crop. Two of the insects, as far as known, are being recorded on this plant for the first time. In this paper the biological characteristics and the economic status of the insects and mites which occur on the crop are given.

The study was undertaken in the gardens attached to the Agricultural College and Research Institute, Coimbatore. The three species of jasmine namely. *Jasminum sambac* (Adukku and Gundu — malli), *J. auriculatum* (Mullai) and *J. flexile* (Ramabhanam), commonly grown in the region were available in close proximity with each other in the same garden and provided an opportunity for assessing the host preferences of the insects. The occurrence and relative abundance of the insects under natural conditions were taken as indications of the specificity of the insects for the host plants. The economic status has been evaluated on the basis of injury to the buds which are the commercial products. The identifications of the insects were made by comparison with the collections of insects in the Institute. Two of these which were not represented in the collections were kindly identified by the Director, Commonwealth Institute of Entomology, London, whose help is gratefully acknowledged.

1. *The Bud worm, Hendecasis duplifascialis* Hampson, Pyralidae, Lepidoptera. By far the greatest injury is caused by a small green caterpillar which lives singly concealed inside immature buds. It is smooth with thin, pale hairs on the body, grows to half an inch in length and has a black head and prothorax and green legs. It feeds on the innermost petal of the closed bud in the initial stages and emerges through a circular hole made usually on the tubular portion of the corolla for tunnelling into other buds in the shoot. A few silk strands with faecal pellets entagled in them connect up the buds in

the shoot and 2 or 3 buds get damaged, before the caterpillar leaves the buds to pupate in thin silken cocoons in the soil. The buds mature and open normally but the central petal is found eaten away or drying along with some faecal matter left behind by the caterpillars. The moth is a small white one with black wavy lines on the posterior wings and abdomen and black up-turned palps. This insect attacks ordinarily *J. sambac* and is seen on the others only occasionally.

The food plant of the insect does not appear to have been recorded so far since its first description (Hampson 1896).

2. The *bud and shoot worm, Elasmopalpus jasminophagus* (Hampson), Pyralidae, Lepidoptera. This is another insect which attacks the bud but ordinarily lives outside the buds in tunnels of silk and excreta. In rare cases it is found inside buds in the early stages. It can be distinguished by the dark lines and spots on the head, the reddish brown pro–and mesothoracic segments and the dark legs. It grows to an inch in length and develops latero-dorsal streaks of brown and turns completely brown before pupation. It actively wriggles when disturbed, and pupates in the tunnels in folds of leaves. The moth is narrow, elongate and dark gray with pale hind wings. It occurs on all species of Jasmine and is found all through the year. Trehan's (1940) description of the jasmine insect in Lyallpur points to this species and Usman and Puttarudriah (1956) record it in Mysore on wild jasmine. This is apparently the first record of this insect in this State on cultivated jasmine.

3. The *bud gall fly, Contarinia maculipennis* Felt, Cecidomyidae, Diptera. Apart from the caterpillars mentioned above, the yellowish maggot of this midge is also found to live inside unopened buds at the base of the tubular corolla. The buds swell up at this portion, became stunted in growth and gradually dry away. The maggot actively wriggles out when the bud is opened. It occurred on *J. auriculatum* in July and August after rains. Thirumal Rao *et al.* (1954 and 1955) recorded it on *J. sambac* in Andhra for the first time in India, and stated that it changed the colour of the bud to violet. The swelling noted in Coimbatore does not appear to be seen in *J. sambac*. Dr. M. S. Mani is said to have collected the midge in Madras but the species of the plant is not given. This appears to be the first record of the insect on *J. auriculatum* but the incidence in Coimbatore is not heavy.

4. The *shoot web-worm, Margaronia unionalis* Fabricius, Pyralidae, Lepidoptera. The tender leaves of new shoots are knit together with small stitches by a stout green caterpillar with pale

head and legs. Minute black dots are found on the sides of the thoracic segments. Resting longitudinally in these webbings the caterpillars scrape away the parenchyma of the leaves in the early stages and eat away portions in later stages. The dark pellets of excrement found under the webbings indicate the presence of the caterpillars. It folds the leaves backwards and pupates in thin silk cocoons. The moth is about an inch in size, white with a thin brown line along the anterior border, of the forewings. It affects all species of the plant but prefers *J. auriculatum* usually with *J. sambac* coming next. Although the leaves are damaged to a slight extent, the growing shoots are not affected and therefore the injury is not severe. The insect has been recorded previously but is not very destructive.

5. The *leaf web-worm, Nausinoe geometralis* Guenee, Pyralidae, Lepidoptera. Another green caterpillar which builds elaborate network of webbings with leaves especially in the lower portions of the plant, causes more severe injury to the plant. It has a broader head with dark lines on the sides and has dark circular markings around the hairs on the body. The caterpillars are found in groups and the infestation spreads among the branches, reducing the leaves to mere nerves. The naked green pupa is found suspended in the webbings. The moth is brown with many hyaline patches on both the wings. It affects all species of the plant but prefers *J. sambac* or *J. flexile* and is found all through the year. Hampson (1896) gives the distribution as the whole of India but so far it does not appear to have been recognised as one feeding on this crop. This insect has not been recorded in this institute hitherto.

6. The *wingless grasshopper, Orthacris simulans* Fabricius Acrididae, Orthoptera. The brown wingless grasshopper with lateral red stripes bordered with black is known to be a polyphagous insect causing injury to several plants in Coimbatore. It is generally found eating away portions of leaves in tender shoots and the injury becomes marked during summer when other crops are not present in the field.

7. The *brown spotted stink bug, Antestia cruciata* Fabricius, Pentatomidae, Heteroptera. The small stink bug with brown spots and white lines on the dorsum is usually found on the hills affecting coffee and other crops. Though it was reported to infest the plant in Bellary, so far it has not been found in the plains of the present Madras State. In Coimbatore it was found living on *J. auriculatum* most of the time and occasionally affecting the other two species also, It, however, did not cause any perceptible injury to crop.

8. The *Brown Leaf hopper, Ricania fenestrata* Fabricius, Fulgoridae (Homoptera). This is a brown moth-like insect with a large hyaline patch on the forewings, which feeds on the terminal twigs. The nymphs are pale green with white wax all over the body and the long caudal filaments are held like a fan over the body. It breeds on all the species of plants and is found all through the year. Puttarudriah and Maheswariah (1954) regarded it as a severe pest of *J. flexile* in Mysore and stated that the oviposition caused the withering of shoots. Such wilting of shoots has not been observed in Coimbatore nor is it injurious in any way. It has been noted on lucerne *(Medicago sativa)* and sapota *(Achras sapota)* also. The insect is included in the collections in the Inistitute collected on jasmine by former workers but has not so far been reported.

9. The green leaf hopper, *Flata ocellata* Fabricius, Fulgoridae Homoptera. This pale green moth-like insect with minute red spots on the forewings is also found feeding on the terminal stem. The nymphs are elongate and white with two thin yellow median lines on the body bordered with green. Two long white filaments protrude from the caudal region. This is also found on all the three species but prefers bushy portions of the plant for breeding. Like the previous one it also does not cause any visible injury. The insect has been collected by previous workers but not reported so far.

10. The *white fly, Dialeurodes kirkaldyi* Aleyrodidae, Homoptera. The oval, yellow nymphs of this white fly occurs on the lower surface of leaves of *J. auriculatum* from March to May. Except a certain amount of discolouration of the leaves, there is not much injury to the plant.

11. *Mealy bugs and scales. Pseudococcus virgatus* Cockerel, Coccidae — Homoptera. A red elongate mealy bug with transverse rows of white meal and two small caudal processes is usually found singly or in small groups on the lower surface of leaves in association with spiders and leaf webbing insects. It has not caused any visible injury to the plant so far, since the population does not increase to any great extent.

The mealy bug, *Phenacoccus ornatus* Green and the red scale *Aspidiotus aurantii* M have not so far been noted on jasmine in this locality, nor has been heard of as affecting the crop in the State in recent years.

12. The *lace wing bug, Leptopharsa ayyari* Distant, Tingidae Heteroptera. This lace wing bug has only been observed occasionally in March and October on *J. sambac* and in both instances there were only mild incidence of the insect. Evidently it does not cause much injury to the plant.

13. The *flower thrips Isoneurothrips orientalis* B., Thysanoptera — (Thripidae). This black thrips with yellow nymphs is usually found in the buds and flowers and only rarely on the very tender leaves. It is present all through the year on all the species but the damage is almost negligible.

14. The *red spider mite, Tetranychus cucurbitae* Rahman and Sapru. Tetranychidae — Acarina. Very often the leaves get covered with large colonies of this red mite with yellow nymphs and turn yellow. *J. sambac* and *J. auriculatum* are usually affected throughout the year, occasionally injury to the plants, being severe.

15. The *gall mite, Eryophyes* sp. Eryophyidae — Acarina. This mite makes the leaves turn whitish with thick incrustations on the lower surface. Many leaves in the plants get affected and though the leaves do not wither away, the vitality of the plant is reduced. It has been noted to affect *J. sambac* and *J. flexile* in gardens in the surrounding area.

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