A COW BUG (*ANCHON PILOSUM*, WLK.) INJURIOUS TO LEGUMINOUS CROPS IN MALABAR *

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Though insects of the bug family *Membracidae*, known popularly by such names as tree hoppers, cowbugs, hornbugs, little devils, etc. are found distributed all over the tropics, hardly any one of them has so far been noted as a plant pest of any appreciable economic importance. Neither Lefroy nor Fletcher in their important publications on Indian insects speak of any of these bugs as plant pests in India. They only refer to one insect of this group *Oxyrachis tarandus*, F. which is commonly noted breeding on *Red gram*, *Acacia arabica* and *Cassia* species and which is never found so far to cause any appreciable damage to their host plants.

During his recent entomological studies in South Malabar, the writer came across a species of this family appearing as a sporadic pest and causing appreciable harm to lab-lab, cowpea and allied leguminous plants. It was noted as rather serious on lablab vines for two seasons in succession in 1935 and 1936. Since there is no record of any such injurious insect from S. India so far, and since the insect is quite different from *Oxyrachis tarandus* F., it is proposed to present this short paper on this insect and on its bionomics noted so far.

Extent and nature of damage. The insects begin to appear in small members first on the Cowpea (*Vigna Catiang*) crop early in July after the first monsoon rains. From this crop the insect transfers its activities to lablab during the autumn months and continues till early summer. The external indication is the existence here and there on the vines of oval gall-like enlargements which, when cut, show a regular series of numerous cigar shaped eggs of the bug thrust by a female insect, which give rise to the early generations of the season. In course of time adults and young bugs are noted perching like small spines or thorns on the vines and shoots, and these suck the plant sap. Apart from the damage done to the vines during the process of egg laying by the female puncturing and irritating the vines, the bugs in their different development stages suck up the plant sap from the tender portions and allow the distal parts to fade and gradually die out as in the case of plant lice attack. In bad infestations numerous young vines are found fading and dried up, and several gall like formations are found on the vines, which easily snap when handled. The insect is found in all its stages resting and feeding on the tender shoots and pods, and when disturbed the adult hops off in its characteristic style only to perch on an adjacent shoot.

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The insect and its bionomics. Membracid bugs are easily made out and differentiated from other plant bugs by their small size, and particularly by the peculiar structural variations of the prothorax in them. This part of the body, takes different shapes in these bugs forming a short horn like process on either side and into another distinct posterior process; these structures often take curious bizarre shapes in different species and have gained them the name hornbugs on that account. The membracid noted in this connection has been identified as *Anchon pilosum Wlk.* Of the half a dozen species of *Anchon* noted so far from India, this species *A. pilosum* has a wider distribution having been recorded from N. India, Bombay, Ceylon and S. India. From its face to the tip of the wings it measures 3½ to 6 mm. The posterior pronotal process is long and sharply pointed backwards and extends beyond the posterior end of the body. The lateral processes or horns are short and blunt though distinct. Eyes are very small and the wings project beyond the body which is laterally compressed. Head and pronotrum, brown testaceous in color; grey pilosity formed all over the body, the post process brown but dark at tip.

As stated before, the eggs are laid in groups, each egg being laid in a puncture made into the growing succulent plant tissue; these eggs hatch in 3 or 4 days into active greenish nymphs. These nymphs have gregarious habits and are often found near the adults and the eggs; they are generally fringed with short spines all over the body surface and feed exactly like the adult bugs on the plant sap. They are neither able to hop nor fly like the adults when disturbed; they either crawl away or drop down. In about two weeks' time, during a normal season, one generation of bugs attains maturity. In this way numerous generations are produced under favourable conditions the pest multiplies and the host plants suffer. So far no natural enemies have been noted. On the other hand the activities of the bug are encouraged and helped by ants as in the case of plant lice. Just like plant lice these bugs also throw out a sweet juice very much sought after by ants. The particular ant found closely associated with this insect is a pale honey colored long legged camponotine ant *Plagiolepes J.* known locally as *Sonan*; it is a fairly common ant found in gardens and households all over Malabar and South Kanara districts. Colonies of these visit the nymphs and adult bugs, tickle them and get the honey dew drops; they also convey the nymphs to secure places on the host plant and tend them like cattle—hence known also as *Cowbugs*. The presence of ants on these leguminous plants often indicate the presence of these membracid bugs also and often give us some clue as to the exact whereabouts of these bugs on the plants.

Control measures. Though when neglected these bugs cause appreciable harm, the pest can be easily controlled with proper

prophylactic and remedial measures. In the early stages, if the adults and the egg galls are hand picked and destroyed, the insect may not assume pest form, but if no attention is paid to it in the early stages, both handpicking and contact washes may be employed with success, even when the bugs are found in numbers. This being the first case of a membracid bug which has shown pest propensities in S. India during his thirty years' experience in S. India, the author has thought it may be interesting to present a short account of such an insect and elicit information and suggestions from economic entomologists in other parts of India.

PRELIMINARY STUDIES IN PLANTAINS GROWN IN MADRAS

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Introduction of new varieties cultivated in the different parts of the province was taken up during 1932 at the Agricultural Research Station, Samalkot. The present collection at the station contains most of the important varieties of the Presidency. It was not till 1935 that it was possible to put them down on a field scale to study some of their economic characters under normal field conditions. The general trend of variation in plant and bunch characters of some of the varieties was studied during the year, and the data obtained are presented in this paper.

The crop was grown on heavy clay soils with good facilities for irrigation and drainage. Good sword suckers of medium size and of about 3 to 4 months old were planted 10 links apart either way. They were manured at 20 cart loads of cattle manure and 1000 lb. of ammonium sulphate per acre. The fields were irrigated and drained as and when required.

Growth. It may be stated that under Godavari conditions, the crop generally makes its maxium growth during the rainy months of July to November. As the plant puts on more and more leaves, the stem (pseudo stem) gets stouter and stouter and elongated, till all growth practically ceases about two to three weeks before the inflorescence, commonly called the " flower ", emerges.

Detailed measurements of the heights and the internodal lengths of four important varieties are recorded in Table I which is self explanatory.

Leaf Production. Varieties vary in the number of leaves they produce in a newly planted field if suckers of almost the same age and size are planted and accorded identical manurial and cultural treatments (Table I). The variation in their different leaf characters is recorded in table II.