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NOTES ON DESTRUCTIVE INSECTS OF GHONT IN DAMOH, MADHYA PRADESH

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SUMMARY

The authors record fifteen insect species which were found causing damage to *ghont* (*Zizyphus xylopyra*), an important plant species, in its natural environs in Damoh, Madhya Pradesh. The parasites of these insects, reared in the laboratory, have also been recorded. Biological notes on each insect species have also been given under each in the text. Mathur and Singh (1960) record 14 insect species on *ghont*.

Introduction

Ghont (*Zizyphus xylopyra* Willd.) (Rhamnaceae) is found all over India in rocky hill tracts up to 3000 ft., usually scattered in mixed type of forest, and appears to reach its optimum in a small area including the whole of Damoh district and adjoining areas in Saugor and Narsinghpur districts in Madhya Pradesh.

Ghont has multifarious uses, most important of which is its utility in lac cultivation. It is a major lac-host of regional importance in Madhya Pradesh, Uttar Pradesh and the Punjab (Glover 1937 and Roonwal *et al.* 1958). In Madhya Pradesh it is of considerable importance in Panna and Chhatarpur districts (Gokulpure *et al.* 1965), Jabalpur-Saugor region and the adjoining areas of Bhopal (Srinivasan 1956). Besides offering itself for lac cultivation, its fruits provide tannin for tanning and dyeing leather, its wood is a source of fuel and its leaves provide food for the cattle (Gokulpure *et al.* 1966).

Despite its being an important species, little attention has so far been paid to study its insect pests with a view to protect it from damage. Mehra (1956), Mathur and Singh (1961) made observations on some *ghont* pests. A number of insects were found responsible for causing damage to the growing tissues of this species in Damoh, thereby hampering with the healthy growth of its shoots, which are essential for development of lac insects.

The insects in the present paper are arranged family-wise and both the families and insects under them have been described in alphabetical order. Biological notes under each species have also been given.

COLEOPTERA

Cassididae

Platyria erinaceus F.

It is a small reddish beetle whose body is fringed with small reddish hairs. It causes damage to the leaves by making small circular holes during July to September.

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Curculionidae

Myllocerus sp., *Myllocerus ? evasus* Marshall, *Myllocerus undecipustulatus* F., and *Xanthochelus faunus* Oliv.

The adults are of varied colour patterns, polyphagous and ravage the leaves from April to November. The damage may be done to the new flush of leaves or the older ones. They start eating from the margin in characteristic small semicircles. The adult conceals itself either on the angle of the budding shoot and the stem. It feigns death and drops to the ground, when disturbed.

Myllocerus spp. are more often encountered than *Xanthochelus* sp.

Lamiidae

Celosterna plagiata White

The larva feeds within the stem and the frass produced during tunnelling is ejected through a hole. The adult beetle feeds on the bark of the stem causing permanent injury to it; which makes the rest of the bark peel off from the stem. The damage is seen during July to October, though the beetle is rarely found near the site of injury.

Celosterna scabrator Fabr.

The white eggs of this beetle are laid in the bark of the stem and sealed with gelatinous excretion. Careful observation reveals only the presence of scars. The larval period extends to about 9-10 months and the complete life-cycle is annual (Mathur 1964). The damage is caused both by the young and adult and is similar to that by *C. plagiata*. The beetle was also found on *Z. mauritiana* and *Z. oenoplia*. Mathur (1964) has recorded *babul* (*Acacia arabica*), *Casuarina*, teak and *Prosopis spicigera* as its food plants.

Meloidae

Mylabris phalerata Pall

The adults are polyphagous and are responsible for devouring the flowers during July to September.

HEMIPTERA

Coccidae

Drosicha stebbingi Green

The commonest form of this pest is the flattish, plump, soft, white and slow-moving wingless female. The male is winged with smoky body. During March to May it is very common to find tender branches covered with 15-20 females. During June to September young ones are seen clustered on the branches. The shoots dry up due to constant sucking of the sap by the bugs.

Eurybrachyidae

Eurybrachys sp.

Although the adults are seen on young shoots nearly throughout the year, they are more abundant during July to October. A slightest disturbance makes them hide or fly away briskly.

ISOPTERA

Termitidae

Odontotermes redemanni Wasm.

It feeds on the bark of the plant by constructing earthen tunnels as far upwards as the branches suitable for lac inoculation. The injury starts after the advent of monsoon.

LEPIDOPTERA

Geometridae

Dilinia medardaria Herrich-Schaffer (Boarminae)

This is the most frequently occurring defoliator of *ghont* and some observations have already been made on its biology by Gokulpure and Mehra (1966) at Damoh and by Sah and Mehra (1966) at Namkum.

The globular, white to light green, egg measures 0.5-0.6 mm in diameter. As many as 5-40 eggs per female were recorded. The eggs hatch in 6-7 days. The larva moults three times. The newly hatched larva is yellowish-green with reddish head and has three pairs of thoracic legs and two pairs of abdominal prolegs. The full-grown larva is dark green with brown head and measures 32.00 mm. The larval period lasts 11-12 days. The larva, before pupation, passes one day in prepupal stage. The pupation takes place in the folds of fallen leaves or under the soil. The pupa is dark brown and measures 12-17.5 mm in length and 4.5 mm at the maximum width. The pupal period was observed to last 7-13 days. The adult moth is grey-brown; both wings with straight medial line and with black spot at the end of the cell. Underside whitish with very prominent black cell-spots to each wing.

The newly hatched larvae nibble the young leaves and later eat up the entire leaves as they grow in size. This results in the drying up of the affected shoots which checks the growth of the young plants. The pest is prominent from July to November.

A variety of parasites were reared from the larvae, namely, *Apanteles jujubae* Wilkinson, *A. ruficus* Haliday (Braconidae), *Mesochorus* sp. (Ichneumonidae), *Compsilura concinnata* Mg. (Diptera : Tachinidae) and *Hexameris* sp. (Nematoda : Mermithidae).

Indarbelidae

Inderbela quadrinotata Wlk.

The bark eating caterpillar of this pest is dirty brown, stout, and capable of moving to and fro. Its presence on the infected tree is indicated by masses of excrement and silk webbing with which it covers the bark on which it feeds. Its activities also result in the formation of a tunnel which affects the branch even deeper than its bark layer and which, through its hole opening outside, serves as a focus for infection of all kinds. Older trees are generally more heavily attacked than the younger ones, though the latter are by no means immune. The severe attack on the host-plants starts after rains. Other food-plants recorded locally were *Cassia fistula* (*amaltas*) and *Holarrhena antidysenterica* (*dudhi*).

Lycaenidae

Taractus theophrastus Fabr.

The eggs are white, round but slightly depressed on the free pole and irregularly spotted with whitish dots on the chorion. They measure 1.2 mm in diameter and are laid singly on any part of the plant. They hatch in 3-4 days. The newly hatched larva is yellowish with a hypognathus head. Each segment bears a pair of hair dorsally. The colour of the larva changes to green with its growth. The larva moults three times. The mature larva measures 8.0-10.5 mm. The larval period ranges from 26-31 days. Pupation takes place in the soil. The pupa is white but changes to black as it matures. The pupal period ranges from 9-13 days. The larva feeds on both sides of the leaf leaving behind linear, papery zigzag tracks, which later shrink and present a wrinkled appearance. The attack devitalizes the plants. The pest appears from May to November. An unidentified braconid was recorded from the pest.

Noctuidae

Thiacidas postica Wlk.

The eggs are laid in masses adjacent to each other on either side of leaves. They are round, white and measure 0.85-0.90 mm in diameter. The eggs look beautifully sculptured

due to seven longitudinal lines which do not reach the free pole. The eggs hatch in 3-5 days and each larva emerges by making a circular hole on the side of the chorion, which is white when empty. The newly hatched larva is whitish with a black head and three pairs of thoracic legs and five pairs of abdominal prolegs on the 6th to 9th and last segments. All the segments are distinct and bear white hairs dorsally. The first instar larva measures 2-3 mm in length. The larva moults six times. The mature larva resembles the first instar larva except that it is bigger and measures 30-36 mm in length. The larval period ranges 16-17 days. It pupates in the soil or fallen leaves by weaving a loose cocoon reinforced with its own loose hair and soil particles. The pupa is brown and measures 18-22 mm in length and 6-7 mm at the maximum width. The pupal period lasts 18-20 days. The adult is greyish-brown measuring 22-25 mm in length and having a wing expanse of 28-30 mm. It is nocturnal and prefers a congregation to devour the hypodermal layer of the leaves. With the advance of growth of the larvae the fresh leaves are severely attacked and in the absence of leaves even the growing tips are not spared. The mature larva is a voracious defoliator and impairs the growth by leaving blunt shoots. Most of the damage is done during monsoon period, though the pest is active till November. Besides *ghont* the pest was also collected on *ber* (*Z. mauritiana*). The following parasites were reared from the larval stages:

Apanteles tephrobae Cameron (Hymenoptera : Braconidae): A single whitish larva emerged from a mature host larva and spun a whitish cocoon. The adult emerged after 4-6 days.

Charops obtusus Morl. (Hymenoptera : Ichneumonidae): The larva of this parasite is blackish, tapering at both ends. Only one parasitic larva emerged from each mature host larva. The pupa is spindle-shaped, brown, and possesses 7 longitudinal dark brown lines at the distal end. The adult emerged after 4-7 days by biting through the puparium.

Mesochorus sp. (Hymenoptera: Ichneumonidae): Only one larva emerged from each host larva and spun a white cocoon. The adult emerged after 7-10 days.

Drino (*Prosturmia*) sp. and *Exorista fallax* Mg. (Diptera : Tachinidae) and *Hexameris* sp. (Nematoda : Mermithidae) were also recorded.

Noctuidae

Achaea janata Lin.

It is commonly known as Castor semilooper and is also a pest of citrus. The eggs are laid on either surface of the leaf. The larva nibbles the succulent leaves in its younger stages but attacks older leaves and the growing tips of the shoots with the advance of growth. The damage checks the growth of shoots. The mature larva is a voracious foliage-feeder. The pest is active during July to September but the maximum damage is observed during August. The larva pupates in the fallen leaves.

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