

NEW RECORD OF HARAR (*TERMINALIA CHEBULA*) FRUIT BORER *DICHOCROCIS* SP. (LEPIDOPTERA: CRAMBIDAE)

This study identifies the pests infesting the harar (*Terminalia chebula*) fruits in the lower hills of Himachal Pradesh. One of these reared under laboratory conditions was identified as *Dichocrocis* sp. (Lepidoptera: Crambidae). Its adult is a small yellowish brown moth with black spots on the wings, and its infestation started in June which continued till harvest in December. Up to 82.5% fruits were found infested with the larvae boring into the fruits and contaminating it with frass and excreta.

Terminalia chebula commonly known as harar is a deciduous tree found upto an altitude of 1600 m amsl in Himalaya. It occurs in Himachal Pradesh, Haryana, Punjab, Uttarakhand and Jammu and Kashmir. In Himachal Pradesh it is found in Sirmour, Hamirpur, Mandi, Kangra and Bilaspur districts at an altitude of 800-1100 amsl (Sharma and Thakur, 2016). It is grown in plantations as well as found in wild., with the fruits being well known for its medicinal values (Bag et al., 2013). This medicinal plant suffers from problems like premature fruit fall and insect pests and diseases. Chander and Chauhan (2014) had reported a beetle infesting harar fruits in Haryana and adjoining parts of Himachal Pradesh. In the Hamirpur district of Himachal Pradesh it was observed to be infested heavily by a borer, with symptoms of frass coming out of the fruit by making a circular hole. The present study focuses on this and identify the same and brings out details of incidence and nature of damage.

The study was done at the Khaggal farm (650 m amsl), College of Horticulture and Forestry, Neri District Hamirpur, Himachal Pradesh in 2017. Harar trees in bearing were selected and observed from mid-April as soon as the flowers started appearing, and until harvest in first week of December. Ten trees of almost uniform age and vigour were selected for evaluating the incidence, with ten fruits from each tree collected randomly from all directions of every tree thus, making a sample of 100 fruits every week. The fruits with damage symptoms like hole or with excreta or frass were taken as infested, and % damage worked out.

The biology was studied under the laboratory conditions, with the infested fruits collected in July

and kept in rearing cages, with some fruits kept in a separate cage so as to allow the adults to emerge. The fruits in other cages were opened on routine basis on every alternate day to study the life stages. The adults obtained were got identified from the Zoological Survey of India Kolkata, Lepidoptera Section.

The pest was identified as belonging to *Dichocrocis* sp. (Crambidae: Lepidoptera), and it is a new record on harar; the species is still to be identified. Infestation was observed starting with onset of monsoons in 2nd week of June. Infested fruits were conspicuous with presence of excreta. Chong et al. (1991) had observed that in durian boring by *Dichocrocis punctiferalis* usually occurs under the mass of frass, webbed together in between thorns of the fruit. Also, damaged fruits were bound with other fruits with a gummy secretion from the caterpillars. The nearby leaves were also bound by the gummy secretion with the infested fruits, and two fruits hang close together are preferred. Evangelista (1995) had also observed that with durian fruit borer attack is identified by the presence of faecal matter, and fruits that clump were preferred.

The damage is followed with secondary infection of fungi leading to fruit drop, which corroborates with observations by Chong et al. (1991). The infestation ranges between 22.5 to 82.5% from 2nd week of June till the harvest of fruits in 2nd week of December (Fig. 1), with maximum damage being in the 3rd week of July.

The larvae are pale brown with a dark brown head capsule and mouth parts. Ganesha et al. (2013) had shown the second instar larvae of *Dichocrocis* were pale brown, and in 3-4 hours of moult, colour of head and prothorax changed to dark brown and body become pale brown with brown sclerites. The full-grown larva pupates in silken cocoons, within the larval tunnels or in the frass and excreta in between two fruits or between the leaves. Chong et al. (1991) observed that the pupation usually occurs in the larval tunnels, surrounded by shelters of webbing and frass. The pupa is dark brown; Ganesha et al. (2013) observed that the freshly formed pupa was greenish and turned pale brown with brown compound eyes. Pupa measures 10.50 to 11.80 mm long as given in Ganesha et al. (2013), and width being 2.40 to 2.65 mm. Pupal period

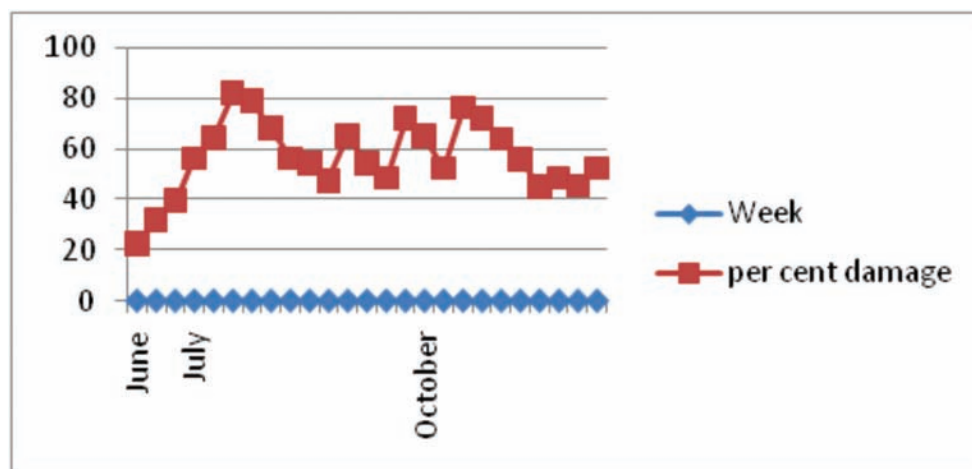


Fig. 1. Infestation by the harar fruit borer

was observed to be 10.21 ± 0.76 days as observed by Kang et al. (2004). Gour and Sriramulu (1992) had reported a larval period to be of 8 days and Ganesha et al. (2013) observed this as 10.51 ± 0.85 days. Chong et al. (1991) observed a pupal period of 8 days; and in Australia it can be 2 to 3 weeks in summer and 8 weeks in winter.

Adult is a medium sized moth, yellowish brown with small dark spots on fore and hind wings. Ganesha et al. (2013) observed that the adult moth as medium sized, brownish yellow with dark spots on wings. The adult male has a wing span of 20.95 ± 0.84 mm and that of female 22.06 ± 1.67 mm. The body of males measure 11.36 ± 1.22 mm long, while that of female is 11.86 ± 1.62 mm. Ganesha et al. (2013) observed that females are larger in size with bulged abdomen having a tuft of hair.

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