

EFFICACY OF GRANULAR INSECTICIDES AGAINST FLAT-HEADED POPLAR BORER *MELANOPHILA PICTA* PALL (BUPRESTIDAE, COLEOPTERA)

Hanif Gul and M. Ismail Chaudhry

Abstract. In granular insecticidal trial against *Melanophila picta* Pall at Shahi Bala (Peshawar) Temik 10%, Diazinon 14% and Thiodan 3% gave 100% mortality of grubs within one month when applied at the rate of 30 gms per plant pit while Disyston killed 55-66% grubs as against 11 to 44% natural mortality of grubs.

Spray treatment of systemic and penetrative insecticides with Dimecron, Carbicron, Orthene and Decis against freshly boring grubs of poplar borer, *Melanophila picta* Pall proved ineffective.

Introduction. The flat headed borer, *Melanophila picta* Pall, bores into the growing stems of poplars and ultimately kills trees. The grubs after hatching out of the eggs during April-June feed superficially in the bark, inner phloem and the cambial layer just beneath the bark. They make hollow patches between the bark and sapwood by making irregular tunnels but later bore into sapwood where they make pupal chambers. The infested bark usually drops exposing the stem. Apart from causing stunted growth the tree stem usually breaks at the point of infestation even with moderate wind.

Review of literature. Beeson (1941) reported this borer on *Populus euphratica*. Chaudhry, Chaudhry and Khan (1966) recorded it as serious pest on *P. nigra* in Mardan, Dargai and Peshawar. It has also been reported as a serious pest on poplars in Iraq by Raeder-Roitzsch and Khatta (1962). Chaudhry *et al* (1969) recorded it on *P. x-euramericana* and *P. euphratica* from Kohat, Abbottabad and Peshawar. Chansler and Pierce (1966) reduced the attack of bark beetles by injecting cacodylic acid in trees. Chaudhry and Shah (1972) have controlled the pest by implanting Bidrin injection into the phloem of infested stem but the pressurized capsules are no longer available. The present study was undertaken with a view to control poplar stem borer by application of spray or granular insecticides.

Material and Method. Orthene, Dimecron, Decis and Carbicron were tried as spray on the infested stems of poplar in 0, 0.1%, 0.2% and 0.3% concentrations against the freshly hatched grubs of *Melanophila picta* Pall feeding in the bark of trees. The experiment was replicated thrice with three trees in each treatment under randomized split plot design. None of the insecticides proved effective even in the highest dose.

Granular insecticides Temik 10%, Diazinon 14%, Thiodan 3% and Disyston 15% were tried against the boring grubs. Two-year old infested poplars generally 3-4 metres high were selected for the trial in June, 1979. The experiment was laid out on randomized

split plot design. There were four doses of each insecticide and keeping three trees in each treatment the experiment was replicated thrice. A total of 144 infested trees were selected and marked. The plant pits were dug out upto 5 cm depth and the granular insecticides at the rate of 0, 10, 20, 30 g per plant pit were mixed in soil around plant bases according to lay out plan of the experiment. The plants were irrigated after the application of insecticides. Observations were recorded one month after treatment by scraping the bark of the treated and untreated trees.

Results and Discussion. The observations recorded on the efficacy of granular insecticides against boring grubs of *Melanophila picta* are tabulated below:

Insecticides	Doses g/plant	Number of treated trees in 3-replications	Number of trees found free of attack	% Mortality
Temik 10%	10	9	6	66
	20	9	8	88
	30	9	9	100
	Check	9	4	44
Diazinon 14%	10	9	7	77
	20	9	7	77
	30	9	9	100
	Check	9	2	22
Disyston 15%	10	9	6	66
	20	9	6	66
	30	9	6	66
	Check	9	2	22
Thidoan 3%	10	9	8	88
	20	9	8	88
	30	9	9	100
	Check	9	1	11

Temik, Diazinon and Thiodan gave 100% kill of the grubs when applied at the rate of 30 g per plant pit. Thiodan gave 88% mortality with 10 and 20 g per plant pit while Temik, Diazinon Disyston gave 66-88%, 77 and 66% mortality in the same doses, respectively. The cost of insecticidal granules for treating 100 poplar plants with Diazinon and Thiodan comes to Rs. 3/30 and Rs. 6.00, respectively.

References

1. BEESON, C.F.C. 1941. The ecology and control of the forest insects of India and neighbouring countries.
2. CHANSLER, J.F. and D.A. PIERCE. 1966. Bark beetles mortality in trees injected with cacodylic acid (Herbicide) J. Econ. Ent. 59: 1957-59.
3. CHAUDHRY, G.U., M.I. AHMAD, I.A. HAFIZ., O.Z. MOLLER, M.B. ZAMAN, ZAKAULLAH and S.M. JAMAL. 1969. Insect pests and diseases of poplar in West Pakistan—a special report, Peshawar.
4. CHAUDHRY, G.U., M.I. CHAUDHRY and S.M. KHAN 1966. Survey of insect fauna of forests of Pakistan—Peshawar.
5. CHAUDHRY, M.I. and B.H. SHAH. 1972. A new technique for the control of poplar stem borer, *Melanophila picta* Pall by implanting Bidrin injection, Pak. J. Zool. 4(2): pp. 213-217.
6. RAEDER-ROITZSCH, J.E. and A.R. KHATTA. 1962. Epidemic outbreak of *Melanophila picta* Pall in irrigated plantation in Iraq. Proc. Near east Poplar conference. 1962. Istambul Turkey.