

Studies on the Control of *Loranthus elasticus* Desrouss. Parasitising *Mangifera indica* Linn., using 2,4-D.

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Of the 22 species of *Loranthus* known to occur in Kerala (Rama Rao, 1914) *Loranthus elasticus* is the most important economically as it parasitises mango trees, causing often serious damage. Infection leads to loss of vitality and yield, death of branches and reduction of crown size, and ultimately to the death of the tree. (Figs. 1 & 2).

The usual control measure is cutting of smaller branches and removal of the parasite from larger branches and trunks. In the latter case there is often regrowth of the parasite from the haustorial system. Drastic pruning weakens the tree, as in mango stump growth is slow and often inadequate.

It has been reported that *Loranthus* spp. parasitising various host trees can be controlled by 2,4-D. Considerable success on the control of *Loranthus* spp. on *Eucalyptus* has attended the use of 2,4-D either as a foliage spray on the parasite (Hartigan, 1949) or by injection of the chemical into the holes bored in the trunks of the host (Greenham and Brown, 1958). Injections of 2,4-D into the trunks of the host trees give effective control of *Loranthus* spp. on 'Sissoo' trees (Kadambi, 1954). Muth-

anna (1955) reports that injections of chlorinated phenoxy acetic acid into the trunks of the host, offers an excellent remedy for the control of *Loranthus* spp. parasitising various hosts including mango, but he has not specified the species of the parasite or the chemical concerned. The present paper embodies results of an experiment on the effect of spray applications of 2, 4-D in controlling *L. elasticus* on mango trees.

Materials and Methods

The trial was conducted on some parasite-infested mango trees at Kodappanankunnu, Trivandrum. The proprietary product 'Dicotox extra' (of May and Baker Ltd) containing 40% ethyl ester of 2, 4-D was used. Three concentrations of the active ingredient viz. 0.3%, 0.4%, and 0.5% were tried. Each of these was applied at three frequencies viz., once, twice at 5 days' interval and twice at 10 days' interval. Unsprayed parasites served as control. Each treatment comprised of four heavily infested branches and these were replicated 4 times. The spray was applied to the foliage of the parasite, thoroughly wetting the foliage. Effects of the toxicant were

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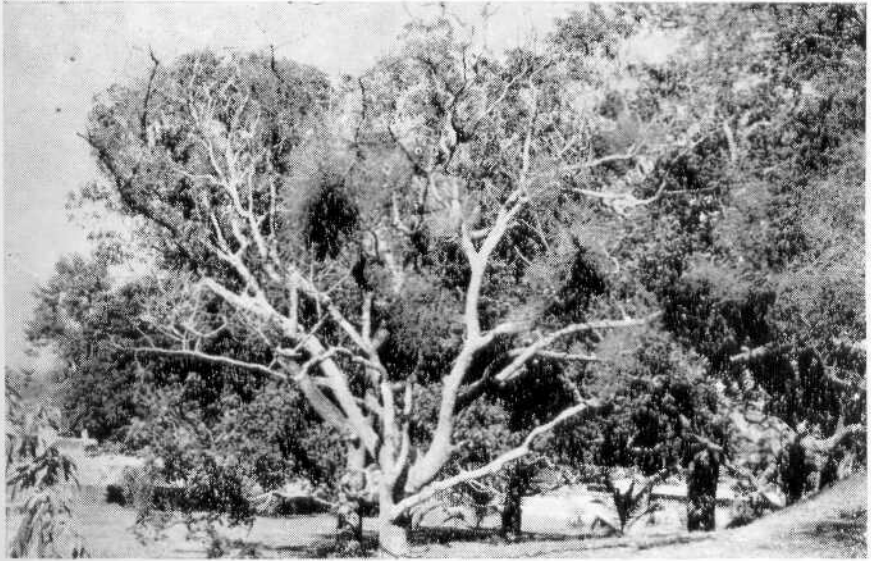


Fig. 1. Mango tree (fore-ground) killed by the parasite



Fig. 2. Death of branches above point of infection caused by the parasite
(Remnants of dead parasite also seen)

assessed by visual ratings at weekly intervals for 14 weeks starting from 23-6-1961, the date of the first spraying.

Results and Discussion

Table I gives the results of the effect of the different treatments on the parasite. It

TABLE I

Effect of spraying different concentration of 2, 4-D on *L. elasticus* on mango and host twigs.

Treatments		Time in days for kill	
Concentration per cent	Frequency	Parasite	Host twigs
0.3	once	Leaf injury only*	Leaf injury only *
0.3	Twice at 5 days interval	36	76
0.3	Twice at 10 days' interval	36	76
0.1	once	36	82
0.4	Twice at 5 days' interval	28	76
0.4	Twice at 10 days' interval	28	76
0.5	once	36	76
0.5	Twice at 5 days' interval	28	50
0.5	Twice at 10 days' interval	28	50
Control	—	No Injury	No injury

* Parasite regrows.

will be observed that 0.3% 2, 4-D sprayed once does not cause death of the parasite, while two applications of this concentra-

tion kill the parasite in 36 days. All the higher concentrations kill the parasite, single applications taking 36 days and

repeated applications taking 28 days. All treatments except 0.3% 2, 4-D applied once prevent regrowth of the parasite.

The symptoms of injury to the parasite caused by the weedicide are bending and twisting and a general malformation of the young leaves. Mature leaves turn yellow with spreading necrotic patches and abscise finally. Gradually the parasite dies and may break loose from the host and fall down.

Twigs of the host trees which happen to receive the spray are killed. Table I gives the time required to kill the host twigs by the different concentrations of the weedicide. It is observed that, though slower in action, the weedicide is equally lethal to host twigs also. Young growth is more sensitive than mature, being killed even by a single application of 0.3% 2, 4-D. Mature leaves turn yellow and abscise and is followed by death of twigs. However it is also observed that none of the 2, 4-D treatments applied on the parasite attached to large branches with well developed cork injure either the branches or the twigs of these branches.

Conclusion

From the results of the experiments the following facts are patent. Of the different treatments tried a single application of 0.4% 2, 4-D appears to be the most advantageous and economical. This can be used

freely to control *L. elasticus* attached to branches with well developed cork and trunks of mango trees. But care has to be taken to prevent the spray from falling on on the foliage of the host. Treatment should be avoided when the tree is in flush.

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