

TOXICITY OF EPN, DDT, AND PARATHION TO LARVAE OF VARIOUS SPECIES OF MOSQUITOES

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It is well known that insecticides differ in their effectiveness against various species of insects. As an example, Yates (1951) showed that 0.001 p.p.m. of DDT killed 97 per cent of first-instar floodwater *Aedes* larvae but only 22 per cent of *Aedes dorsalis* (Meig.). Knowledge of the selective action of insecticides on different species of insects is of importance in control efforts.

This paper gives the results of laboratory tests at Corvallis, Oregon with EPN,¹ DDT, and parathion on fourth-instar larvae of floodwater *Aedes* (70 per cent *vexans* (Meig.) and 30 per cent *sticticus* (Meig.)), *Culex quinquefasciatus* Say, and *Culiseta incidens* Thom. The *Aedes* larvae were obtained from soil taken from breeding areas along the Columbia River, the *Culex* larvae were from a laboratory colony, and the *Culiseta* larvae were obtained from egg rafts collected locally.

obtain the LD-50 and the LD-90 (Table 1).

On the floodwater *Aedes* the concentrations giving LD-50 were similar for all these insecticides although EPN was slightly more toxic. The concentrations required to give LD-90 were still closer together.

With *Culex quinquefasciatus* 31 times as much DDT and almost twice as much parathion as EPN were required to give LD-50. EPN was the most toxic insecticide to mosquito larvae tested at this laboratory.

With *Culiseta* 3.4 times as much DDT and 2.2 times as much parathion as EPN gave LD-50 and LD-90.

Both EPN and parathion were more toxic to *Culex* than to *Aedes* or *Culiseta*, but DDT was the most toxic material to *Aedes*. Thirteen times as much DDT was required to give LD-50 or LD-90 on

TABLE 1. Parts per million of EPN, DDT, and parathion required to give LD-50 and LD-90 to mosquito larvae of several species

Insecticide	Floodwater <i>Aedes</i>		<i>Culex</i> <i>quinquefasciatus</i>		<i>Culiseta incidens</i>	
	LD-50	LD-90	LD-50	LD-90	LD-50	LD-90
EPN	0.00135	0.00342	0.000821	0.00143	0.00196	0.00364
DDT	0.00196	0.00435	0.025	0.05	0.00667	0.0133
Parathion	0.00253	0.00431	0.00158	0.00228	0.00364	0.00793

All were reared to the fourth instar at a constant temperature of 80° F. and the larvicide tests were conducted at this temperature. Twenty larvae were used in either 200 or 300 ml. of tap water. Five to six concentrations of DDT and EPN and three to four of parathion were used on each species. Each test was repeated three to eight times. Mortality counts were made at both 24 and 48 hours, and the average mortalities for each concentration were plotted on coordinate paper to

Culex as on *Aedes* and about three times as much as on *Culiseta*. On the other hand, both EPN and parathion required nearly 1.6 times as much poison for LD-50 on *Aedes* than on *Culex*. EPN was less toxic to *Culiseta* than to *Aedes* or *Culex*. On the LD-50 basis parathion was about 1.5 times as toxic to *Aedes* as to *Culiseta*.

Literature Cited

- YATES, W. W. 1950. Comparative resistance of different instars of *Aedes* mosquitoes to chlorinated hydrocarbon insecticides. *Jour. Econ. Ent.* 43(6):944-945.

¹ Ethyl p-nitrophenyl thionobenzene.