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RELATIVE CONTACT TOXICITY OF INSECTICIDES TO THE CATERPILLARS OF *CNAPHALOCROOS MEDINALIS* GUENEE

Relative contact toxicity of 24 insecticides against the moths of *C. medinalis* was reported earlier (Das and Nair, 1974). The log dose probit relationship between the same insecticides (vide Table 1) and 4th instar caterpillars of *C. medinalis* also was studied the results of which are reported in this contribution. The caterpillars for this experiment were collected from infested rice fields. The source of insecticides and methods of preperation of required emulsions were the same as reported by Das and Nair (1974). The caterpillars (15 for each replication) taken in petridishes (9 cm. dia.) were sprayed under a Potter's spraying tower using 1 ml of the spray fluid for each spraying. When the sprayed body surface became dry the caterpillars were transferred to untreated paddy tillers planted in pots and enclosed in cages (40 x 3.5 cm) made of perforated polythene sheets. The lower end of the cage was tied round the base of the tillers with a bit of cotton wool in between. The upper end of the cage was sealed with a flame after introducing the larvae. The polythene bag was kept extended with the aid of a stiff wire loop. The mortality of treated caterpillars was recorded at the end of 48 hours and the data subjected to probit analysis (Finney, 1952).

The results are presented in Table 1. Ethyl parathion was the most toxic chemical and it was closely followed by methyl parathion, elsan and endosulfan in toxicity. Toxicity of the other insecticides came in the following descending order: phosphamidon, acephate, monocrotophos, dimethoate, diazinon, carbophenothion, quinalphos, fenitrothion, formothion, dichlorvos, leptophos, carbaryl, endrin, phorate, malathion, methyl demeton, thiometon, fenthion, trichlorfon, BHC. The results show that the relative toxicity of the insecticides to the larvae differed from the relative toxicity of the moths reported earlier (Das and Nair, 1973). While 5 out of the 24 insecticides tested were effective against the moths about a dozen of them proved effective against the larvae. Though all the systemic poisons were ineffective to the moths phosphamidon, monocrotophos, dimethoate and formothion manifested good contact toxicity to the larvae: they were even more toxic than the contact poisons like BHC, carbaryl and malathion. Obviously in chosing insecticides for controlling the pests the life stage or stages present in the field also have to be taken into consideration

Table 1

Contact toxicity of various insecticides to the 4th instar caterpillars of *C. medinalis*

Name of insecticides	Heterogenity X^2—(3)	Regression equation	LC_{50}	Fiducial limits	Order of Relative toxicity	Remarks
B. H. C.	0.037	Y=1.4136X + 2.1834	0.0929	0.1293 0.06683	24	x=log(concentration x 10^3)
Endrin	1.882	Y=0.869 X + 4.052	0.0123	0.1923 0.007852	17	x=log (concentration x 10^3)
Endosulfan	0.384	Y=1.541 X + 2.447	0.C04539	0.005856 0.003519	4	x=log(concentration x 10^4)
Ethyl parathion	1.721	Y=0.712 X + 3.989	0.00264	0.004493 0.001532	1	x=log (concentration × 10^4)
Methyl parathion	5.593	Y=2.825 X + 0.752	0.003102	0.003835 0.002656	2	x=log (concentration x 100
Dichlorvos	1.597	Y=2.127 X +0.743	0.01002	0.01230 0.008166	14	x=log (concentration × 10^4)
Carbophenothion	3.078	Y=3.791 X + 1.670	0.005834	0.006577 0.005250	10	x=log (concentration x 10^4)
Diazinon	4.631	Y=2.708 X +0.386	0.005346	0.006194 0.004613	9	x=log (concentration x 10^4)
Elsan	1.757	Y=1.197 X + 3.097	0.003882	0.005483 0.002748	3	x=log(concentration x 10^4)
Fenthion	0.459	Y=1.198 X + 2.374	0.01556	0.02336 0.01038	22	x=log(concentration x 10^4)
Malathion	0.612	Y=0.896 X + 3.054	0.01488	0.03001 0.007379	19	x=log(concentration x 10^4)

Leptophos	0.273	Y=2.046 X + 0.785	0.01148	0.01511 0.008730	15	x = log (concentration x 10⁴)
Acephate	0.729	Y= 1.652 X + 2.230	0.004753	0.006102 0.003788	6	x=log (coneentration x 10⁴)
Quinalphos	3.307	Y=1.584 X + 2.198	0.005875	0.007650 0.004511	11	x = log (concentration X 10⁴)
Carbaryl	1.234	Y = 1.709 X + 1.469	0.01164	0.01517 0.008937	16	x = log (concentration × 10⁴)
Fenitrothion	1.500	Y = 1.860 X + 1.572			12	x = log (concentration x 10⁴)
Trichlorfon	0.965	Y = 1.398 X + 1.840	0.0182	0.02559 0.01294	23	x = log (concentration < 10⁴)
Thiometon	4.662	Y = 1.906 X + 0.0842	0.01521	0.01940 0.01191	21	x = log (concentration x 10⁴)
Phosphamidon	5.193	Y = 1.727 X + 2.110	0.004710	0.005932 0.003774	5	x - log (concentrationx 10⁴)
Dimethoate	0.515	Y=2.6004X + 0.530	0.005234	0.006873 0.003895	8	x = log (concentration x 10⁴)
Monocrotophos	0.178	Y = 2.471 X + 0.9046	0.004764	0.006292 0.003939	7	x = log (concentration x 10⁴)
Formothion	0,272	Y = 0.6731X + 3.743	0.007523	0.0166 0.003422	13	x=log (concentration × 10⁴)
Phorate	0.394	Y=2.128 X + 0.531	0.01259	0.02258 0.006889	18	x=log (concentration × 10⁴)
Methyl demeton	0.118	Y=2.0826 X + 0.474	0.0149	0.01878 0.01182	20	x = log (concentration × 10⁴)

Data were homogeneous in all cases. Y = Profit kill; LC = Concentration calculated to give 5Q per cent mortality

സംഗ്രഹം

നെല്ലിന്റെ ഓല ചുരുട്ടി പുഴക്കൾക്കെതിരെ കീടനാശിനികളുടെ സ്പർശവിഷാക്തത ലാബ്രട്ടറി പരീക്ഷണങ്ങൾക്ക വിധേയമാക്കിയതിൽ ഏറ്റവും കൂടുതൽ വിഷാക്തതയുള്ളത് ഫോളിഡോൾ (ഈതയിൽ പാരത്തയോൺ) ആണെന്നു കണ്ടു. മീതയിൽ പാരത്തയോൺ, എൽസാൻ, എൻഡോസൾഫാൻ എന്നീ കീടനാശിനികൾക്കും വിഷാക്തത വർദ്ധിച്ചതായി കണ്ടു. ഫോസ്ഫമിടാൻ, അസിഫേറ്റ്, മോണോക്രോട്ടോഫാസ്, ഡൈമിതോയേറ്റ്, ഡയാസിനാൺ, കാർബോഫിനോതയാൺ, ക്വിനാൽഫോസ്, ഫെനിട്രോത്തയോൺ, ഫോർമോത്തയോൺ ഇവയ്ക്കും സാമാന്യം വിഷാക്തതയുണ്ടെന്നു തെളിഞ്ഞു. മററു കീടനാശിനികൾ താരതമ്യേന മോശമായി കാണപ്പെട്ടു.

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