

gri. Res. 7. Kerala, 1975, 13 (1)

RELATIVE SYSTEMIC TOXICITY OF SOME INSECTICIDES TO THE BROWN PLANT HOPPER WHEN APPLIED AS GRANULES IN SOIL

From 1972 onwards the brown plant hopper *tfilaparvata lugens* Stal. has become a major pest of rice in Kerala State, India. Application of granules of insecticides is often recommended for its control (Anon, 74, 75). Precise information on the relative systemic toxicity of different insecticide granules was lacking which prompted the present studies., results of which are presented in this note.

The insecticides used as granules were carbofuran (Furadan 3G), phorate (Thimet 10G), mephosfolan (Cytrolane 10G), M I P C (Mipcin 4G), thiodemeton (Disyston), aldicarb (Temik), carbaryl + BHC (Sevidol), leptophos (Phosvel) quinalphos (Ekalux 5G), chlorodimeform hydrochloride (Galecron 50 SP) and carbaryl (Sevin). The granules were applied at graded doses (in kg a. i / ha) to 15 day old rice seedlings of 'Jaya' variety raised in flower pots on we! land soil, uprooted after 48 hours, washed, planted in fresh soil in petridishes and nymphs of brown plant hopper exposed to them after caging the plants in glass tubes closed with muslin cloth. Ten third instar nymphs were exposed on plants in each cage and there were three replications for each dose of the insecticide. Check consisted of nymphs exposed to untreated rice plants. Mortality of the nymphs was recorded after 48 hours of exposure to the plants under the different treatments.

LD 50 values could be calculated only for five insecticides and these are given in Table 1.

Table 1

LD 50 in kg a. i. per ha. of different insecticides to nymphs of *N. lugens* when applied as granules in soil

<i>Insecticide</i>	<i>LD) 50</i>
Carbofuran	0.691
Mephosfolan	8.790
MIPC	0.799
Thiodemeton	6.270
Aldicarb	2.488

It may be seen that carbofuran and MIPC showed the maximum toxicity to brown plant hopper, followed by aldicarb. Thiodemeton and mephosfolan showed relatively very low toxicity to the insect.

As regards the other insecticides under study phorate at a dosage of 4 kg a. i. / ha gave only 33% mortality of the insect, while carbaryl - BHC mixture gave only 13% mortality at the same dosage. Quinalphos, chlorodimeform hydrochloride and carbaryl showed very poor mortalities (10 to 33 per cent) even at a dosage of 8 kg a. i. per ha., while leptophos did not give any mortality at all at this dosage.

സംഗ്രഹം

ബ്രോൺഹോപ്പർ നിവാരണത്തിന് പതിനൊന്നു തരി രൂപത്തിലുള്ള സസ്യോത്കർഷക (സിസ്റ്റോമിക്) കീടനാശിനികളുടെ ഒരു താരതമ്യപഠനം നടത്തിയതിൽ കാർബോഫോസ്, മെഥോസഫോളാൻ, ഏ. ഐ. പി. സി, തയോഡീമെറ്റോൺ, ആൽഡികാർബ് എന്നീ കീടനാശിനികൾ മുഞ്ഞനിവാരണത്തിന് അത്യുത്തമമായി കണ്ടു. ഇവയിൽ കാർബോഫോസും, ഏ. ഐ. പി. സിയും ആണ് മുൻപന്തിയിൽ നിന്ന കീടനാശിനികൾ.

REFERENCES

- Anonymous, 1974. Intensive Agriculture, June 1974. P. 19. Directorate of Extension, Ministry of Agriculture, New Delhi
- Anonymous, 1974. Intensive Agriculture, August 1974. P. 16. Directorate of Extension, Ministry of Agriculture, New Delhi
- Anonymous, 1975. Package of practices recommendations 1975, PP. 8-9. Directorate of Extension Education, Kerala Agricultural University Mannuthy

College of Agriculture
Vellayani.

M. i. THOMAS
KUNJAMMA P. MATHEW
c. c. ABRAHAM
M, R. G. K. NAIR

(M. S. received: 3-9-1975)