

RESIDUE PATTERN IN RICE FOLLOWING DIFFERENT DOSES AND TIMES OF APPLICATION OF INSECTICIDE GRANULES *

Indiscriminate use of insecticides leads to residue problems in the harvested produce. This problem is more serious when systemic granules are used on a variety of crops like cereals. Extensive reports are available on the insecticide residues in rice, grain, bran, hull and straw. However the information on the residues of mephosfolan and carbofuran in rice is scanty.

A field experiment using Jaya and the insecticides mephosfolan and carbofuran applied at doses and the frequencies as shown in Table I was conducted. At harvest, composite samples were collected from each plot. The residues of mephosfolan were estimated colorimetrically following the methods of Blinn and Boyd (1964) and modified by Baskaran (1971) while the method of Gupta and Dewan (1971) was adopted for carbofuran residue estimation. The data are presented in Table 1. The residues of mephosfolan and carbofuran in the husk and the straw were at non-detectable level. In the grain and bran, the residues increased with the dosage and number of rounds of application. Two rounds of carbofuran 0.75 kg a. i /ha recorded 0.04 ppm while it ranged from 0.10 to 0.15 ppm for three rounds. A similar trend was also noticed for carbofuran 1 kg a. i/ha. With regard to mephosfolan 0.75 kg a. i/ha the residue level ranged from 0.10 to 0.16 ppm and 0.32 ppm for two and three rounds respectively. At 1 kg a i/ha level the residues ranged from 0.16 to 0.20 and 0.32 to 0.48 ppm for two and three rounds respectively. A similar trend was also observed for the residues of the carbofuran and mephosfolan in the bran. Rajakkannu *et al.* (1977) observed 0.06 to 0.19 ppm of carbofuran residues in grain and straw respectively and the insecticides applied after 40 days of transplanting left more residues in grain and straw.

Higher doses of insecticides left more residues in rice grain and bran. The residue content increased with the time of application. The insecticides applied after 40 days of transplanting left more residues. Eventhough the residues were more in grain and bran, they were well below the tolerance limit of 0.20 and 2.0 ppm for carbofuran and mephosfolan respectively, prescribed by the Environmental Protection Agency of U. S. A.

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Table 1

Residues of carbofuran and mephosfolan in rice grain, bran, husk and straw

Tr. No.	Treatment	Dose kg a. i/ha	D AT	Residues in ppm*	
				Grain	Bran
1.	Carbofuran	0.75	21,40	0.04	0.10
2.	-do-	0.75	25,45	0.04	0.08
3.	-do-	0.75	15,35,55	0.10	0.10
4.	-do-	0.75	20,40,60	0.15	0.11
5.	Carbofuran	1.0	20,40	0.04	0.10
6.	-do-	1.0	25,45	0.04	0.12
7.	-do-	1.0	15,35,55	0.17	0.15
8.	-do-	1.0	20,40,60	0.17	0.18
9.	Mephosfolan	0.75	20,40	0.10	0.12
10.	-do-	0.75	25,45	0.16	0.12
11.	-do-	0.75	15,35,55	0.20	0.15
12.	-do-	0.75	20,40,60	0.32	0.17
13.	Mephosfolan	1.0	20,40	0.16	0.16
14.	-do-	1.0	25,45	0.20	0.08
15.	-do-	1.0	15,35,55	0.32	0.17
16.	-do-	1.0	20,40,60	0.48	0.18
17.	Untreated control	—	—	—	—

* Not detectable in husk and straw.

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