

Residues of Dimethoate in/on Curds of Cauliflower

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Studies on the dissipation of dimethoate from cauliflower curds by microbioassay and chemoassay indicated that a safer period of 4 to 5 days should be observed between spraying with 0.03 to 0.06 per cent dimethoate and harvesting of cauliflower curds.

Dimethoate is one of the commonly used pesticides against pests of cauliflower. Spraying of this pesticide becomes essential if pest infestation is noticed during curd bearing stage. Such spray results into higher level of pesticide residues in the curds. The present study was, therefore, aimed to find out a safer period to be elapsed before harvest after protecting the crop with dimethoate.

MATERIAL AND METHODS

Field experiment was laid out in randomized block design by planting seedlings of cauliflower variety 'Snow ball-16' on 8.12.1980. Two treatments with 0.03 and 0.06 per cent dimethoate spray and control constituted three treatments. Each treatment was replicated thrice. Only one spray was given in respect of insecticidal treatments during curd bearing stage. Marketable curds from each treatment were harvested at an interval of 0, 1, 3, 5, 7, 10 and 15 days after spraying. Residues dimethoate in curds were determined by microbioassay and chemoassay.

One day old males of vinegar fly, *Drosophila melanogaster* Meigen was used as test insect in microbioassay. In respect of chemoassay, a method recommended by George *et al.* (1966) was employed using spectrophotometer at 505 nm. Average recoveries of pesticide from fortified samples were 93 and 89 per cent when determined by microbioassay and chemoassay respectively. Residue data were subjected to mathematical treatments (Hoskins, 1961).

RESULTS AND DISCUSSION

Microbioassay

Data on the dissipation of residues are given in Table 1. Initial residues of 7.35 and 11.41 ppm were observed in the fruits from the treatments with 0.03 and 0.06 per cent dimethoate respectively. Time required by initial residues to reach the tolerance limit of 2 ppm (FAO/WHO, 1971) was 3.25 and 4.60 days in case of treatment with 0.03 and 0.06 per cent spray, respectively. Detectable residues were not

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obtained in the samples harvested on with 10th day from treatment lower and higher concentration of dimethoate.

Chemoassay:

Data on residues obtained by chemoassay (Table I), indicate that the initial residues on the curds from the treatments with 0.03 and 0.06 per cent spray were 7.65 and 11.22 ppm, respectively. The corresponding time required to reach by these initial levels of residues, the tolerance limit of 2 ppm was 2.90 and 4.15 days. Detectable levels of residues were not obtained in the samples taken on 10th and 15th day from treatments with 0.03 and 0.06 per cent dimethoate, respectively.

Taking into account pattern of dissipation of dimethoate waiting period

of 4 to 5 days should be observed if crop is sprayed with 0.03 to 0.06 per cent dimethoate. Krishnaiah and Rattan Lal (1973) studied dissipation and worked out waiting period of 7.5 to 8.8 days after spraying the crop with 0.03 to 0.04 per cent.

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Table 1. Dissipation of dimethoate in/on Cauliflower curds.

Days after Spraying (x)	Dimethoate 0.03 % concentration		Dimethoate 0.06 % Concentration	
	Microbioassay	Residue (ppm) Chemoassay	Microbioassay	Residue (ppm) Chemoassay
0	7.35	7.65	11.41	11.22
1	4.50	4.08	6.47	6.28
3	2.46	3.14	3.71	3.38
5	2.14	2.14	2.52	2.30
7	0.19	0.06	0.63	0.56
10	BDL	BDL	BDL	0.03
Regression equation				
$R_{L_{50}}$ (days)	$Y = 2.9395 - 0.1967X$	$Y = 3.0576 - 0.2605X$	$Y = 3.0466 - 0.1622X$	$Y = 3.3872 - 0.2619X$
ttol (days)	= 1.53	= 1.55	= 1.87	= 1.19
Tsen (days)	= 3.25	= 2.90	= 4.60	= 4.15
	= 9.69	= 6.74	= 12.41	= 7.97

BDL Below detectable level.