

FIELD EVALUATION OF PETKOLIN FOR THE CONTROL OF APHIDS ON DIFFERENT CROPS

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Petkolin in the dose of 1 lb active ingredient per acre produced 97.6% mortality of black aphids on Santroza crop. Two lb of Petkolin killed about 90% population of aphids on mustard crop. Two lb of Petkolin controlled 85.5% population of aphids on peaches. Two lb ultra low volume concentrate of Petkolin checked 90% population on roses and 95% population on mustard crop.

The aphids have been a general and serious problem to the crops as they cause direct feeding injury in the absence of control measures like chlorosis¹ and leaf deformity by sucking the plant juices and their excreted honey on leaf surfaces serves as an excellent medium for fungal growth resulting in leaf discoloration and tissue deterioration. It is very important to control them by chemicals. Therefore, this paper deals with the chemical control of aphids by using an indigenous pesticide Petkolin and other imported pesticides.

The indigenous pesticides Petkolin² showed marked toxicity against cockroaches,³ houseflies and mosquito larvae in the laboratory. It was found safer to plants⁴ and mammals. Petkolin has also controlled many insect pests on different crops in the preliminary field trials.⁵ Later it was decided to find out the effective dose of indigenous Petkolin for aphids in the field and compare its effectiveness with other pesticides. The spraying of pesticides was done in the form of emulsion and ultra low volume concentrate (ULVC). The crops used were santroza crop; mustard crop, *Brassica campestris*; peaches, *Prunus persica*; and roses, *Rosa macrophylla* Lindl. The data were analysed statistically and the mortality results were corrected by Abbotts⁶ formula.

Materials and Method

The indigenous pesticides were sprayed in doses of 1-2 lb active ingredient per acre as emulsion and 2 lb per acre as ULVC. The emulsions were sprayed with Urgent Power Sprayer and ULVC was sprayed with Turbair-CIBA Hand Sprayer. The spraying was done in a way to hit the undersides of the leaves. The size of each experimental plot was 1/4 acre. The treatments were replicated three to five times in a completely randomized design. The treatments were evaluated by counting the living and dead adult aphids on 10 leaves per plant after 24 hr and 72 hr of treatment. The leaves were collected at random from the top,

middle and bottom of the plant from each plot. The other pesticides included in the experiment were Safos, Anthio, Nuvan, Endrin, Dimecron, Malathion, Bidrin, Sumithion, Ethion, Chlorothion, Diazinon, Metasystox, Nexion, Phosdrin, Perfekthion, Sevin, Thiocron, Veltin, Vapona and Nagos.

Results

Petkolin was found effective against aphids and 1 lb per acre of it gave 97.6% mortality of black aphids, *Anuraphis persicae* Niger Smith on Santroza. It was also found effective in controlling aphids on mustard crop and 2 lb acre killed from 87% to 90% population of aphids, *Aphis brassicae* L., in 24 hr. The other pesticides like Safos, Anthio and Nuvan killed 100% population of aphids. The recommended doses of Diazinon, Veltin, Chlorothion, Metasystox and Malathion controlled 81% to 92% population of aphids. In comparison to this Perfekthion, Phosdrin, Thiocron, Bidrin, Nexion, Sevin and Vapona did not give good results against aphids (Table 1).

Two-pound dose of Petkolin gave 85.5% mortality of aphids, *Myzus persicae* Sulz., on peaches, whereas Ethion, Dimecron, Anthio, Bidrin, Perfekthion, Malathion, Nexion and Nagos gave 82% to 96% mortality.

Petkolin was found quite effective in the form of ultra low volume concentrate (ULVC). It was observed that 2 lb ULVC of Petkolin killed 90% aphids on roses, and 95% aphids on mustard crop.

Discussion

It was revealed from the experiment that 2 lb active ingredient of Petkolin gave effective control of aphids on Santroza, mustard, peaches and roses, while 0.25 lb Bidrin, 0.3 lb Thiocron, 1 lb Phosdrin, 0.25 lb Nexion, 0.4 lb Perfekthion, 1 lb Sevin and 0.25 lb Vapona did not give good control of aphids on mustard crop.

In the present field trials 4 oz Dimecron, 15 oz Ethion, 8 oz Anthio, 8 oz Bidrin, 12 oz Perfekthion, 1.12 lb Malathion, 2 lb Nexion and 1 lb Nagos showed effective control of aphids on peaches.

TABLE 1.—TOXICITY OF PEKOLIN AND OTHER PESTICIDES AGAINST APHIDS ON DIFFERENT CROPS.

Pesticides	Dose lb/acre	Pest/Crop	Mortality % 24 hr
Petkolin	1.0	Black aphid/Santroza	97.6
Petkolin	2.0		90.7
Safos	0.35		100
Anthio	0.5		100
Nuvan	0.25		100
Petkolin	2.0		87.0
Anthio	0.37		100
Bidrin	0.25		79.0
Chlorothion	0.37		88.9
Diazinon	0.3		81.0
Malathion	1.0		92.0
Nexion	0.25		73.0
Phosdrin	1.0		76.0
Perfekthion	0.4		63.0
Sevin	1.0	49.0	
Thiocron	0.3	78.0	
Metasystox	0.5	Aphid/Mustard	87.0
Veltin	0.25		85.0
Vapona	0.25		25.0
Petkolin	2.0		85.5
Dimecron	4 oz		94.5
Ethion	15 oz		82.3
Anthio	8 oz		91.2
Bidrin	8 oz		92.1
Perfekthion	12 oz		93.2
Malathion	1.12		90.2
Nexion	2.0	94.5	
Nagos	1.0	95.9	
Petkolin (ULVC)	2.0	Aphid/Roses	90.0
Petkolin (ULVC)	2.0		Aphid/Mustard

Pond⁷ reported that 2.5 lb Malathion effectively controlled potato aphids and Michelbacher *et al.*⁸ reported that 1.1 lb Malathion controlled melon aphids effectively. Joung and Ditman⁹ obtained effective control of the melon aphids with 0.44 lb Sevin.

Savage and Harrison¹⁰ described that 0.5 lb Perfekthion and 0.25 lb Dimecron resulted in a high level of mortality to green peach aphids on tobacco crop.

It may be concluded that Petkolin could be used to control aphids on mustard, peaches, roses and santroza crops.

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