

EFFECTIVENESS OF BROMPHENVINFOS-(Z,E)-2 BROMO-1-(DICHLOROPHENYLO)-VINYLO-DIETYL) IN DISINSECTION OF POULTRY AND CATTLE HOUSES AND BOXES FOR DOGS

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Introduction

Two original phosphoroorganic preparations were synthesized in Poland: bromphenvinfos and methylbromphenvinfos. They are characterized by lower toxicity for higher animals than that observed in the case of chlorphenvinfos (Kroczyński et al. 1971, Bakuniak et al. 1971) and higher effectiveness in controlling animal external parasites (Patyk 1973, Sciesinski 1976, 1977, 1996, 1999).

The present work is a continuation our own investigations on the evaluation of disinsective properties one of two original Polish enolphosphates in the houses for farm and domestic animals: bromphenvinfos – chemical name of the active substance: phosphate – (Z,E)-2 brom-1-(2,4-dichlorophenyl)vinylo-dietyl.

The aim of the investigations was the effectiveness analysis of the commercial forms of preparations (Iposep 25, Iposep aerosol) based on bromphenvinfos which were meant for disinsection of houses for farm animals (cattle), poultry and in dog kennels.

Material and methods

Bromphenvinfos and its commercial forms meant for disinsection were supplied by the Institute of Organic Industry in Warsaw.

The preparations used in the experiments were: Iposep 25 – liquid containing bromphenvinfos 25 a.s. (25%) as well as solvent and vehiculum substances (up to 100%) and Iposep aerosol containing bromphenvinfos 0.5 a.s. (0.5%) and vehiculum (up to 100%).

The investigations took place in breeding centers in the region of the Warsaw province, poultry farm of the Poultry Section of Warsaw Agricultural University and at individual dog breeders.

In the poultry houses the aqueous solutions of Iposep 25 – 0.1% and 0.2% were used for twice repeated spraying of the poultry house at 10 day interval. One poultry house was used as the control. The effectiveness of the preparation against *Dermanyssus gallinae* was checked after 1, 7, 14, 35 and 40 days since the last spraying. In each poultry house the mean

number of living red spider mites was calculated out of all mites counted on 5 surfaces of 1m² each.

In the cattle houses the procedure was similar to that in the poultry houses but here flies were counted on 5 wall surfaces and the mean number was calculated.

Iposep aerosol was used in 17 rooms where dogs were kept, i.e. kennels and boxes for dogs of various breeds. The preparation was used in the form of spraying twice with 10 day interval. The effectiveness of the preparation was checked by examining 17 dogs for the presence of living fleas after 1, 7, 14, 35 and 40 days since the last spraying. The mean number of fleas was calculated for 17 dogs. The number of fleas found on the back and flanks of dogs before the first spraying was accepted as 100%.

The evaluation of parasitofauna was based on the methods used by Mehlhorn et al. (1986).

Results

Iposep 25 (25% brompheninfos) in the form of 0.1% aqueous emulsion was used against the invasion of red spider mite (*Dermanyssus gallinae*) in the poultry houses. The effectiveness of the applied 0.1% emulsion was checked after 1, 7, 14, 35 and 40 days and it amounted after one day to 100% effectiveness which remained up to 40 days.

One day after the application of 0.5% aqueous emulsion of Iposep 25 against flies in the cattle houses the effectiveness amounted to 100% already after one day, after 35 days it was still 90% and after 40 days – about 70% (Table 1).

Iposep aerosol (0.5% brompheninfos) was used against fleas in the kennels and boxes for dogs. After one day its effectiveness was 50%, after 7 days – 100%, after 35 days – 90% and after 40 days – about 85% (Table 1).

Discussion

The performed investigations of the disinsective forms of brompheninfos – Iposep 25 in the aqueous solution at the concentrations of 0.1 and 0.2% against the invasion of red spider mite in the poultry houses showed that 40 days after its application its effectiveness amounted to 100%. Similar results were obtained in our own earlier investigations (Sciesinski 1999).

The application of 0.5% aqueous emulsion of Iposep 25 against flies in cattle houses resulted in 100% effectiveness up to 14 days. After 35 days the effectiveness of the preparation decreased reaching the value of 90% after 35 days and 70% after 40 days.

Brompheninfos in the aerosol form (Iposep aerosol) showed quite good effectiveness against the invasion of fleas in the rooms for dogs amounting to 100% on the 14th day, 90% on the 35th day and 85% on the 40th day.

Similar results were obtained in our own investigations applying disinsective form of brompheninfos – Iposep aerosol for controlling fleas in dogs (Sciesinski 1999).

Conclusions

1. The use of original Polish phosphoorganic preparations based on brompheninfos of the enolphosphate group – Iposep 25 and Iposep aerosol are characterized by high disinsective effectiveness in the houses for poultry, cattle and dogs.
2. The highest effectiveness (100%) of 0.1 and 0.2% solution of Iposep 25 was observed against the invasion of *Dermanysus gallinae* in poultry houses up to 40 days after its application.
3. A high effectiveness (90%) of Iposep 25 at the concentration of 0.5% against flies in cattle houses was observed up to 35 days.
4. Brompheninfos in the aerosol form – Iposep aerosol was effective (up to 90%) against fleas in dogs in the kennels and dog boxes.

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Table 1. Effectiveness of commercial forms of brompheninfos (Iposep 25 and Iposep aerosol) in controlling red spider mite (*Dermatophyssus gallinae*), flies (*Musca domestica*) and fleas (*Ctenocephalides canis*) in the houses for poultry, cattle and dogs

No.	Animals and parasites	Preparations	Number of living parasites before treatment	Number of parasites and % of effectiveness after days							
				1	7	14	35	40			
				living	% effect.	living	% effect.	living	% effect.	living	% effect.
1.	Poultry ¹ Red spider mite	Iposep 25 concentr. 0.1% 0.2%	54 61	0 0	100 100	0 0	100 100	0 0	100 100	0 0	100 100
2.	Cattle ¹ Flies	Iposep 25 Concentr. 0.5%	44	0	100	0	100	4	~90	12	~70
3.	Dogs ² Fleas	Iposep aerosol	24	12	50	0	100	3	~90	4	~85

¹ Means from counting parasites in the houses on 5 surfaces of 1 m² each

² Means from counting parasites on 20 dogs