UNDATED

Carbaryl (1-naphthyl *N*-methylcarbamate) SEVIN

TOXICITY IN RATS

Carpenter, C. P., Weil, C. S., Palm, P. E., Woodside, M. W., Nair, J. H., III, Smyth, H. F., Jr., J. Agr. Food Chem. *9*, 30, 1961

Oral LD-50: 540 mg/kg

CHRONIC FEEDING

No. of Animals. 20 M and 20 F per group.

Feeding Levels. 0, 50, 100, 200, and 400 ppm.

Duration. 2 years.

Mortality. No significant difference between the treated and control animals.

Body Weight. Significant weight depression in male rats only at 400 ppm.

Organ Weight. Kidney and liver/body weight ratios in all treated groups showed no differences from controls.

Clinical Laboratory Tests. Hematological studies revealed no abnormalities. Cholinesterase levels in plasma, red cells and brain showed only a slight transitory depression at a single oral dose of slightly above the LD-50 (560 mg/kg).

Potentiation. These studies indicate no potentiating effect with organic phosphate insecticides.

Metabolism. About one-third of the administered dose appears in the urine as 1-naphthol in the conjugated (glucuronide) form. The fate of the carbamide amine moiety is not known.

Neoplasms. No increase in the incidence of tumors in the treated animals. In a special injection experiment in mice (A/Jax and C3H strains), no tumorigenic effect was noted.

Histopathology. Histological examination of important organs and tissues indicated some liver damage at 400 ppm, but none at the lower levels. In view of the fact that 2-naphthol has been reported to produce cataract in rats, and since 1-naphthol is a metabolite of Sevin, the eyes of the treated rats were carefully examined for cataract. None was found. A special study was undertaken to determine the neurotoxic effect of Sevin in chickens. Histological examination of brain, sciatic nerve, and spinal cord revealed no evidence of demyelination.

No-Effect Level. 200 ppm.

TOXICITY IN DOGS

Carpenter, et al.

CHRONIC FEEDING

No. of Animals. 3 to 4 per group randomly distributed as to sex.

Feeding Levels. 0, 25, 100, and 400 ppm.

Duration. 1 year.

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additional 0.175 ppm

Carbophenothion
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Hazleton Laboratori

Oral LD-50: 30 mg/

SUBACUTE FEEDING

No. of Animals. 25

Feeding Levels. 0,

Duration. 90 days.

Clinical Laboratory

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Histopathology. Th

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Duration. 1 year.

Mortality. All animals survived the experimental period.

Body Weight. All animals made satisfactory gains.

Organ Weight. Kidney and liver/body weight ratios of the treated animals did not differ significantly from the controls.

Clinical Laboratory Tests. Hematological studies, alkaline phosphatase, sulfobromphthalein retention, blood urea nitrogen, and bilirubin determinations did not deviate from control values. Cholinesterase levels and plasma and red cell were followed at appropriate intervals. The values did not differ from controls.

Histopathology. Slight kidney damage at 400 ppm.

No-Effect Level. Somewhat less than 400 ppm and at least 200 ppm.

Discussion

A tolerance of 100 ppm has been established on 17 forage crops. Ample evidence has been presented to show the absence of residues of Sevin, of 1-naphthol, and of the conjugate of 1-naphthol in the milk of dairy animals and in the meat and body fat. (See Special Report K-64 "Residues in Animal Tissues Following Dermal Application and Feeding with Sevin," United States Department of Agriculture, Kerrville, Texas.) A tolerance of 10 ppm has been established in or on raw agricultural commodities making up about 21 % of the daily diet. This could contribute 2.1 ppm to the dietary. A tolerance of 5 ppm has been established in or on raw agricultural commodities making up 3.5 % of the dietary, which could contribute an additional 0.175 ppm of the pesticide or a total of 2.27 ppm.

Carbophenothion (*S*(*p*-chlorophenylthiomethyl)*O*,*O*-diethyl phosphorodithioate) TRITHION

Toxicity in Rats

Hazleton Laboratories report (unpublished) 1956
Oral LD-50: 30 mg/kg for male rats

SUBACUTE FEEDING

No. of Animals. 25 M and 25 F per group.

Feeding Levels. 0, 5, 10, 22, 46, and 100 ppm.

Duration. 90 days.

Clinical Laboratory Tests. Clinical signs of toxicity, typical of anticholinesterase drugs (tremors) noted in animals at 46 and 100 ppm. Cholinesterase levels in the red cells, plasma, and brain not affected at 5 ppm.

Histopathology. This insecticide, like most organic phosphates, owes its toxicity to an inhibitory effect on cholinesterase and not to pathological injury to tissues. Histologically, tissues of these animals were essentially