DATA EVALUATION RECORD

TRICHLORFON

Effects on Enzyme Activities Following Acute and Subchronic Administration to Rats

CITATION: Sitkiewicz D, Zalewska Z. 1975. Activity of cytochrome oxidase and succinate dehydrogenase in the rat following poisoning by the organophosphorous insecticides dichlorvos and trichlorfon. Polish Neuropath. 13:(3) 273-281 [English translation from Polish].

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STUDY TYPE: Effects on enzyme activities following acute and subchronic administration to rats.

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ACCESSION NUMBER: Not available.

MRID NUMBER: Not available.

LABORATORY: Drug Metabolism Laboratory, Institute of Biopharmacy; Academy of Medicine, Warsaw, Poland.

TEST MATERIAL: Trichlorfon (Dipterex 99.9 percent purity).

PROTOCOL:

1. Trichlorfon (99.9 percent) was the test compound used.

2. Male white Wistar rats weighing "about" 200 g were used.

3. Groups of 6-8 animals were administered by stomach intubation an aqueous solution of trichlorfon (concentration not specified) as follows:

   a. Single doses of 12.6, 63, and 315 mg/kg and the animals sacrificed after 2 hours.

   b. Single daily doses of 12.6, 63, and 315 mg/kg for 14 days "except for Sundays and Holidays."

   c. A single daily dose of 12.6 mg/kg for 90 days "except for Sundays and Holiday."

   d. Controls received 4 ml water by stomach tube for the period of time corresponding to each group of dosed animals.

4. Following treatment, animals were killed by decapitation. The brains were removed, homogenized in buffer, and the mitochondrial fraction separated by centrifugation. The cytochrome oxidase and succinate dehydrogenase activities were assayed.

RESULTS:

Trichlorfon did not cause any alteration in the activities of brain mitochondrial cytochrome oxidase or succinate dehydrogenase at any dose level following single or multiple administration.

CONCLUSIONS:

Single or multiple administration of trichlorfon to rats at 2, 10, or 50 percent of the LD_{50} dose had no effect on the brain mitochondrial enzymes, cytochrome oxidase, or succinate dehydrogenase. Since brain acetylcholinesterase is inhibited in similar experiments, it was concluded that trichlorfon cannot penetrate the mitochondia or is metabolized rapidly in vivo. However, in the opinion of this reviewer, in the absence of information on the effect of trichlorfon on these enzymes from tissues other than the brain, the information presented is limited.

INVALID 08-09-83

CORE CLASSIFICATION: ~~Supplementary~~ data.

The study indicates that trichlorfon did not inhibit brain cytochrome oxidase or succinate dehydrogenase in vivo at the doses tested. In addition, no clinical observations were presented.