DATA EVALUATION RECORD

TRICHLORFON

Subchronic Oral Toxicity in Rat

CITATION: Kuchin'skiy M, Savitskiy B, Voronetskaya G. 1977. Morphologic and histochemical changes in the gastric mucosa of rats during subacute poisoning with chlorofos. Farmakol. Toksikol. 40(4):451-454 [English translation].

REVIEWED BY:

Nicolas P. Hajjar, Ph.D.
Senior Scientist
Dynamac Corporation
11140 Rockville Pike
Rockville, MD 20852
301-468-2500

Signature: Nicolas P. Hajjar

Date: July 22, 1983

John R. Strange, Ph.D.
Department Director
Dynamac Corporation
11140 Rockville Pike
Rockville, MD 20852
301-468-2500

Signature: John R. Strange

Date: 22 July 1983

APPROVED BY:

Irving Mauer, Ph.D.
EPA Scientist

Signature:

Date: 07.25.83

DATA EVALUATION RECORD

STUDY TYPE: Subchronic Oral Toxicity in Rat.

CITATION: Kuchin'skiy M, Savitskiy B, Voronetskaya G. 1977. Morphologic and histochemical changes in the gastric mucosa of rats during subacute poisoning with chlorofos. Farmakol. Toksikol. 40(4):451-454 [English translation].

ACCESSION NUMBER: Not available.

MRID NUMBER: Not available.

LABORATORY: Not available.

TEST MATERIAL: Trichlorfon (95 percent pure).

PROTOCOL:

1. Crystalline chlorofos (Trichlorfon, 95 percent pure) was the test substance used. The test material was inappropriately identified in this translation as "0-0-dimethyl-(1-oxy- -hydroxy-2,2,2-trichloro-ethyl)-phosphonothian."

2. A total of 94 Wistar male rats, 3-4 months of age, weighing 220-250 g were divided into 3 test groups and 1 control group.

3. Animals in the 3 test groups received chlorofos once a day for 21 days through a catheter into the stomach at the dose levels of 25 mg/kg (1/2 LD_{50}), 10 mg/kg (1/5 LD_{50}), and 5 mg/kg (1/10 LD_{50}). Control animals received a saline solution on the same schedule.

4. The animals were sacrificed 1 or 9 days after the last treatment and the gastric mucosa were examined. The acid and alkaline phosphatase activities were determined in fixed sections by the method of Gomori.

RESULTS:

One day after the final treatment, animals that received 25 mg/kg trichlorfon (chlorofos) had significant changes in the fundus of their stomachs. Their lumen was significantly expanded and there was separation of the primary cells at the bottom layer (glandular) from their linings.

The cells were darkly stained by the hemotoxylin dye and tended to form small aggregations. In addition, there was hyperemia which was most strongly expressed in the upper layer of the mucosa. The effects seen in the 25 mg/kg group were present in the animals treated with 10 mg/kg, but the degree of expression was far less. The animals in the 5 mg/kg group were essentially like controls with regard to stomach cell organization and cell morphology.

Reaction to acid phosphatase was positive in control animals. Of the animals sacrificed 1 day after the final chlorofos dose, the reaction to acid phosphatase was weaker in the 10 mg/kg group than in the control group, while in the 5 mg/kg group the reaction was similar to the controls. Of the animals sacrificed 9 days after the final chlorofos dose, the 25 mg/kg and 10 mg/kg groups showed reduced reaction in the cells of the neck of the glands while the 5 mg/kg group was identical to the controls. There were no differences in alkaline phosphatase between control and treated animals.

CONCLUSIONS:

The authors concluded that chlorofos caused morphologic and histochemical changes in the glandular cells of the gastric mucosa. These changes disappeared within 9 days after administration of the final dose of the chemical.

In the opinion of this reviewer, complete data necessary to derive this conclusion were not presented. Moreover, data presented suggest effects were still observed in the 10 mg/kg and 25 mg/kg groups after the 9-day recovery period.

The LOEL for histochemical changes in the gastric mucosa for this study was 5 mg/kg, a dose where gastric mucosa hyperemia was observed in the upper segments of the stomach.

CORE CLASSIFICATION: Supplementary.