DATA EVALUATION RECORD

TRICHLORFON

Chromosomal Aberrations in Mice (Micronucleus Test)

CITATION: Paik SG, Lee SY. 1977. Genetic effects of pesticides in the mammalian cells. I. Induction of Micronucleus. Korean J. Zool. 20(1):19-28.

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DATA EVALUATION RECORD

STUDY TYPE: Chromosomal aberrations in mice (micronucleus test).

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ACCESSION NUMBER: Not available.

MRID NUMBER: 00072192.

LABORATORY: Korean Atomic Energy Research Institute.

TEST MATERIAL: Trichlorfon, Dipterex, O,O-dimethyl(2,2,2-trichloro-1-hydroxyethyl) phosphonate; "pure or technical grade" supplied by Korean National Institute of Health or Korean National Agricultural Material Inspection Office [several pesticides tested; source and purity of trichlorfon not specified].

PROTOCOL:

Swiss Webster albino mice [sex not stated], 4 to 8 weeks old, were injected intraperitoneally with an aqueous solution of trichlorfon to yield doses of 124 mg/kg or 312.5 mg/kg (3 mice/dose level). Dosing was repeated once after 24 hours. The doses were selected based on preliminary tests indicating the "lethal dose" as 625 mg/kg. The positive control was cyclophosphamide, and the negative control was not stated.

Test animals were sacrificed by cervical dislocation 6 hours after receiving the final dosage. Bone marrow was harvested from both femurs using fetal calf serum according to the method of Schmid (1973. Agents and Actions 3:77-85). Three smeared slides per mouse were prepared and stained with Wright-Giemsa stain. Microscopic examination of 2,000 polychromatic erythrocytes per mouse was conducted.

The standard tables of Kastenbaum and Bowman (1970. Mut. Res. 9:527-543) were used to analyze the statistical significance for frequency of micronuclei in treated and control groups.

RESULTS:

The incidences of micronuclei in trichlorfon-treated mice (3.33 and 5.56 per thousand at the low and high dose, respectively) were not

significantly different from the mean control value (3.08 per thousand). The positive control values ranged from 24.5 to 102.2 per thousand for cyclophosphamide at 30 to 240 mg/kg.

CONCLUSIONS:

This study did not demonstrate a positive response, however no data were presented to indicate that the dose levels and type of exposure were adequate to elicit a cytotoxic response. The author stated that 625 mg/kg was a "lethal dose," but did not define the term "lethal dose." Consequently, one cannot be certain that the highest dose tested (312.5 mg/kg) was toxic.

CORE CLASSIFICATION: Unacceptable.

The following deficiencies were noted:

- It was not stated if preliminary studies were conducted to determine if the length of exposure and the dose levels used were adequate to determine cytotoxic responses.

- It was not clear how negative control data were obtained. Several pesticides were tested in this study. The solvents used were distilled water (used for trichlorfon), DMSO, and vegetable oil. In the report, Table 2 stated that control data were pooled, but did not specify the vehicle(s) used. In Table 3 (results for DDVP only), the control was saline. In either case, no data were presented for distilled water only, which was the solvent for trichlorfon.