DATA EVALUATION RECORD

TRICHLORFON

Mutagenicity: 1. Gene mutation in Drosophila melanogaster
2. Chromosome aberrations in D. melanogaster

CITATION: Benes V, Sram R. 1969. Mutagenic activity of some pesticides in Drosophila melanogaster. Indust. Med. 38:50-52.

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DATA EVALUATION RECORD

STUDY TYPE: 1. Gene mutation in Drosophila melanogaster [strain not stated].

2. Chromosome aberrations in D. melanogaster [strain not stated].

CITATION: Benes V, Sram R. 1969. Mutagenic activity of some pesticides in Drosophila melanogaster. Indust. Med. 38:50-52.

ACCESSION NUMBER: Not available.

MRID NUMBER: Not available.

LABORATORY: Institute of Hygiene, Prague.

TEST MATERIAL: Trichlorphone, 0,0-dimethyl-2,2,2-trichloro-1-hydroxyethyl phosphonate; supplied by Dr. A.B. Borkovec (USDA, Beltsville) [purity not stated].

PROTOCOL:

1. Drosophila melanogaster [strain not stated] was the test organism. Trichlorphone was dissolved in water at a concentration of 0.005 percent. A 0.2 µl aliquot was injected abdominally, via microsyringe, into each organism. The mutation rate was measured by the Muller-5 genetic test to detect recessive lethality in the X-chromosome.

2. Tests [unspecified] were also conducted to determine eucentric chromosome aberrations.

RESULTS:

1. The spontaneous mutation rate at the postmeiotic germ stage was 58 per 41,921 control X-chromosomes (0.14 percent). The mutation rates in the treated organisms were 0 per 599 X-chromosomes at the postmeiotic germ stage, and 2 per 571 X-chromosomes (0.35 percent) at the meiotic and premeiotic germ stages.

2. "A test of eucentric chromosome aberrations ... also gave negative results."

CONCLUSIONS:

The authors did not consider mutagenic activity below 0.5 percent to be significant compared to the spontaneous mutation rate. The purpose of the study was to screen several pesticides to determine which pesticides display strong mutagenic activity in the system; these were to be further evaluated. The insecticides screened did not display mutagenic activity. It was concluded that the low doses used [due to toxicity to assay organism] may have been responsible for negative results.

CORE CLASSIFICATION: Unacceptable.

The following deficiencies were noted:

- Trichlorphon is an insecticide and the assay organism was an insect.
- The purity of the test material was not stated.
- Only one concentration was tested.
- Positive controls were not employed and several other insecticides that were screened did not display mutagenic activity, indicating the assay may not have been adequate to screen insecticides.
- The number of X-chromosomes evaluated in treated organisms was too small to unequivocally assess mutagenic activity.
- Although the study stated that tests for eucentric chromosome aberrations were performed, the tests were not described and data were not reported.