DATA EVALUATION RECORD

TRICHLORFON

Mutagenicity: 1. Gene mutation in Aspergillus nidulans strain 35.
2. Genetic damage (somatic crossing-over and non-disjunction) in A. nidulans strain P.

CITATION: Morpurgo N, Aulicino F, Bignami M, Conti L, Velcich A. 1977. Relationships between structure and mutagenicity of dichlorvos and other pesticides. Atti Accad. Naz. Lincei 62(5):692-701.

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DATA EVALUATION RECORD

STUDY TYPE: 1. Gene mutation in Aspergillus nidulans strain 35.
2. Genetic damage (somatic crossing-over and nondisjuntion) in A. nidulans strain P.

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ACCESSION NUMBER: Not available.

MRID NUMBER: 05018683.

LABORATORY: Instituto Superiore di Sanita, Rome.

TEST MATERIAL: Trichlorfon, Dipterex, dimethyl 2,2,2-trichloro-1-hydroxyethyl phosphonate; provided by Dr. I. Comoni (Instituto Superiore di Sanita) [purity not stated].

PROTOCOL:

1. A. nidulans strain 35 (haploid; pabaA$_1$, anA$_1$, yA$_2$, methG$_1$, nicA$_2$, nicB$_8$, was used to detect point mutations. Colonies resistant to 8-Azaguanine were detected on plates containing trichlorfon at 2 mg/plate.

2. A. nidulans strain P is diploid and has the following genetic constitution of chromosome 1: su adE$_{20}$/+, riboA$_1$/+, fpaA$_1$/+, anA$_1$/+, proA$_1$/+, pabaA$_1$/+, yA$_2$/+, adeE$_{20}$/+, biA$_1$/+, somatic crossing-over was tested by scoring the appearance of "fpa" (parafluorophenylalanine)-resistant green colonies, homozygous for the fpA$_1$ marker, on plates containing trichlorfon at 2 mg/plate. Nondisjunction was detected by measuring the appearance of yellow "fpa"-resistant clones as well as yellow or dark green sectors (homozyzous yA$_2$+/yA$_2$+) induced in colonies grown in the presence of the drug.

RESULTS:

Trichlorfon did not induce point mutations, but was positive for induction of somatic crossing-over. No results were given for tests of nondisjunction.

CONCLUSIONS:

The authors concluded that trichlorfon "weakly induces recombination," and noted that trichlorfon spotaneously converts to Dichlorvos [reference was provided], which was a mutagen and recombinogen in tests reported in this study. In addition, it was noted that the negative mutagenic results were probably due to the fact that recombination is a more sensitive test than induction of point mutations.

CORE CLASSIFICATION: Unacceptable.

The following deficiencies were noted:

- The purity of the test material was not stated.
- Positive controls were not included.
- Negative controls were not described.
- Only one concentration was tested.
- Data were reported in a qualitative manner; "+" or "-".
- The tests were conducted without metabolic activation.
- Although the study stated tests for nondisjunction were performed, no results were given.