

US EPA ARCHIVE DOCUMENT

DATA EVALUATION RECORD

TRICHLORFON

- Mutagenicity: 1. Gene Mutations in Durum Wheat
2. Chromosomal Aberrations in Durum Wheat

CITATION: Logvineko VF, Morgun VV. 1978. Study of the mutagenic effect of some pesticides on durum spring wheat. Tsitol. Genet. 12(3):207-212.

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DATA EVALUATION RECORD

STUDY TYPE: 1. Gene mutations in durum wheat
2. Chromosomal aberrations in durum wheat

CITATION: Logvineko VF, Morgun VV. 1978. Study of the mutagenic effect of some pesticides on durum spring wheat. Tsitol. Genet. 12(3):207-212.

ACCESSION NUMBER: Not available.

MRID NUMBER: Not available.

LABORATORY: Institute of Molecular Biology and Genetics, Kiev.

TEST MATERIAL: Chlorophos, 80 percent crystalline [source not stated].

PROTOCOL:

Durum spring wheat of the Khar'kovskaya-46 strain was used as the test organism. Air-dried seeds were treated [method not stated] with chlorophos at concentrations of 0.1, 0.3, 0.5, 1 and 10 percent [solvent not stated] for 24 hours. Chromosomal aberrations were determined in mitotic anaphase from acetocarmine preparations of tips of the first rootlets. The incidence of chlorophyll mutations was expressed as percentages of the M₂ seeds. A statistical analysis of results was performed using "Fisher's method" [presumably Fisher's Exact Test].

RESULTS:

There was a significant increase in the percentage of cells with chromosomal aberrations at chlorophos treatment levels of 0.5 and 1 percent. The report presented values for "number of rearrangement/100 cells," which, with one exception (0.1 percent dose), were identical to the percentage values shown below. The meaning of the difference between these two expressed parameters was not stated. Chlorophos treatment did not induce chlorophyll mutations. Data for the 10 percent dose level were not given.

Treatment concentration (percent)	Number of mitoses studied	Cells with chromosomal aberrations (percent)
Control	834	1.199 ± 0.377
0.1	1054	1.518 ± 0.376
0.3	1026	1.462 ± 0.374
0.5	949	2.423 ± 0.499*
1.0	404	3.712 ± 0.941*

*Significantly different from control at 0.95 limit.

CONCLUSIONS:

The data indicated that chlorophos induced chromosomal aberrations in root tip cells of wheat. However, the study was so poorly reported (or translated) that it could not be possible to repeat it. The manner in which chlorophos was prepared for seed treatment, and the manner by which seeds were treated, was not stated. It was not stated if "controls" were treated with solvent. The "number of rearrangement/100 cells" was not defined, yet in some instances (at one dose level with chlorophos, and with other pesticides tested as well) it was not identical to the percentage of cells with chromosomal aberrations. The materials and methods section stated seeds were treated with 10 percent chlorophos, but no data were given.

CORE CLASSIFICATION:- Unacceptable.

The following deficiencies were noted:

- o Positive controls were not included.
- o The use of a solvent negative control was not stated.
- o The study was so poorly presented or translated (elaboration in Conclusions above) that it could not be repeated.