

# enotoxic effects of malathion: an organophosphorus insecticide, using three mammalian bioassays in vivo

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## Abstract

The genotoxic effects of malathion was evaluated using chromosome aberration, sister chromatid exchange (SCE) and sperm abnormality assays in mice. All the three acute doses (2.5, 5 and 10 mg/kg) of malathion tested in the present study, induced significant dose-dependent increase in the frequency of chromosome aberrations and sperm abnormalities, but did not affect the total sperm count. The highest acute dose induced a >12-fold increase in the frequency of chromosome aberrations, two-fold increase in the frequency of SCEs and four-fold increase in the frequency of sperms with abnormal head morphology following intraperitoneal (i.p.) exposure. Further, a significant increase in the frequency of SCEs was observed, but the increase was not dose-dependent. At higher doses, malathion induced a moderate delay in cell cycle as evident from the increase in average generation time (AGT). The present findings suggest that technical grade malathion is a potent genotoxic agent and may be regarded as a potential germ cell mutagen also.

## Keywords

- Malathion;
- Organophosphorus insecticide;
- Chromosome aberration;
- Sister chromatid exchange;
- Sperm abnormality;
- Replication index

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