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## Studies on The Genotoxicity of An Organophosphorous Pesticide Baytex-1000

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**KEY WORDS** Chromosome aberrations; sister chromatid exchanges; mitotic index; genotoxic; pesticide.

**ABSTRACT** Baytex-1000 is an organophorous pesticide. It is widely used both as a larvicide and insecticide in the National Malaria Eradication Programme in India. Malaria control workers are occupationally exposed to Baytex. Genotoxicity of this pesticide was studied by assaying Mitotic Index (MI), Chromosome Aberrations (CA), Sister Chromatid Exchanges (SCE) and Satellite Associations (SA), in short term lymphocyte cultures. Peripheral blood samples were obtained from 60 malaria control workers and equal number of matched controls. MI increased upto exposure period of 5 years and declined thereafter. CA in controls comprised acentric fragment, chromatid gaps and breaks only, whereas in exposed samples, dicentrics, rings, chromosomal gaps, breaks and translocations; chromatid gaps, breaks and isochromatid exchanges were recorded. The frequencies of CA and SCE were significantly increased by smoking and alcohol consumption ( $P < 0.5$ ) and depicted positive correlation with period of exposure. D-G-type SA outnumbered 2D-2G types. The mean frequencies of various parameters in controls and workers exposed to Baytex respectively were: MI (4.29 & 6.43), CA (0.933 & 4.200), SCE (4.32 & 7.28) and SA (5.11 & 16.5). The differences were statistically significant ( $P < 0.05$ ). Time and dose-yield effects of Baytex on micronuclei induction in mouse test system were also significant ( $p < 0.05$ ). All the cytogenetic end points investigated conclusively show that Baytex-1000 is a highly genotoxic pesticide. The mechanism of its action has been described.

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