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In vivo* genotoxicity evaluation of thiamethoxam using *Drosophila melanogaster

Lovleen* and Asma Jan

School of Bioengineering and Bioscience, Lovely Professional University, Phagwara,
Punjab, 144410, India

Abstract :Present research execution deals with genotoxicity evaluation of a systemic neonicotinoids insecticide, thiamethoxam by using larval salivary polytene chromosomes of *Drosophila melanogaster*, exposed to LC₂₀ for 24 hours. To achieve specific target, third instar larvae were sacrificed for temporary squash preparation of polytene chromosomes, both in treated and control stocks. Structural alterations induced in salivary polytene chromosomes of exposed groups, were considered and were compared with natural population. The procured data indicated that the genotoxicity of concerned insecticide was co-related with enhanced frequency of chromosomal aberrations in treated stocks, in comparison to natural population with corresponding vales 32.3 ± 8.25 and 18.33 ± 5.57 respectively. Furthermore, it was discerned that treated stocks comparatively more structural malformation including intra chromosomal ,inter chromosomal and telomeric fusions, paracentric inversions, intrachromosomal and interchromosomal ectopic pairings, asynapses, translocations and breaks , were reported, whereas in control groups only inversions, fusions and ectopic pairings were reported, whereas in control groups only fusions, inversions and ectopic pairings were observed. Subsequently, procured data was analysed by student't' test, which indicated statically significant induced genotoxicity due to selected insecticide.

Key words: Genotoxicity evaluation, thiamethoxam, polytene chromosomes, *Drosophila melanogaster*.

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