

P58. GENOTOXIC EFFECTS OF COBALT NANOPARTICLES AND IONIC FORM IN DROSOPHILA

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Nanoparticles widely used in different industrial areas because of their many advantages. However, there has been little known about toxic effects of NPs on human and environment. Today its known that most of diseases associated with mutation, induced recombination and DNA damage. Therefore, determination of such effects of NPs is important.

In this study, the genotoxic effects of CoCl₂ and CoNPs were investigated by using both Somatic Mutation and Recombination Test (SMART) and Single Cell Gel Electrophoresis (COMET) in Drosophila. SMART is reliable assay to detect a wide range of genetic alterations in a rapid and inexpensive way. In SMART test, the effects of these chemicals were evaluated according to genetic changes (point mutation, deletion, non-disjunction and recombination) in wing imaginal disc cells that lead to the formation of mutant trichomes. On the other hand, Alkaline COMET assay is fast, powerfull and sensitive test to detect the single strand breaks in alkali labile lesions individual cells in DNA.

CoCl₂ showed the positive results for small single spots, large single spot, total mwh spots and total spots categories in only 10 mM concentration in trans-heterozygous flies (mwh/flr3) while CoNP demonstrated positive results for same categories in 1 and 10 mM concentrations. Both CoCl₂ and CoNP concentrations (0,1, 1 ve 10 mM) significant induced the damage for tail moment and tail lenght.

Finally, used chemicals which in this investigation observed in both COMET and SMART assay cause genotoxic potential.

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