



In Vitro Cytotoxicity of Carbon Nanoparticles against Hep G 32 Cells

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SUMMARY. The aim of the present study was to evaluate the *in vitro* toxicity of two multi wall carbon nanotubes (MWCNT) on human hepatocytes (Hep G 32 cell lines). The toxic effects of carbon nanoparticles were analyzed after 48 h of incubation with Hep G 32 cells using MTT assay and also estimated the levels of LDH (that is leakage into the media). The results of the LDH estimation demonstrated that exposure of multi wall carbon nanotubes to hepatocytes (Hep G 32) for 48 h resulted in concentration-dependent increase in LDH leakage and exhibited a significant ($p < 0.05$) cytotoxicity at 3-50 $\mu\text{g/ml}$. Incubation of carbon nanotubes with liver cells produced a dose dependent inhibition of growth of the cells. The TC_{50} or IC_{50} values (toxic concentration 50 i.e. concentration of particles inducing 50 % cell mortality) of two nanoparticles were found in the range of 36.99-37.15 $\mu\text{g/ml}$, which were less than that of quartz (known toxic agent, 39.85 $\mu\text{g/ml}$), indicating the toxic nature of carbon nanoparticles.

KEY WORDS: Carbon nanotubes, Cytotoxicity, In vitro, Hep G 32, MWCNT.

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