OMICS Group Conferences
Accelerating Scientific Discovery
2nd International Summit on Toxicology
October 7-9, 2013 Hampton Inn Tropicana, Las Vegas, USA

Withdrawal from exposure reverses hematotoxicity and hepatotoxicity caused by oral exposure to nitrocellulose thinner in male rats

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Abstract

Nitrocellulose thinner (*nct*) is one of the commonly used industrial chemical solvents. Individuals involved in furniture, paint, automobile manufacture and repairs occupations, and those living around these workplace environments are at the risk of exposure to *nct's* constituents ubiquitously released into the environment. Oral exposure to this solvent has been reported to cause haematotoxicity and hepatotoxicity in rat model. This study assessed the impact of withdrawal from exposure, on *nct* induced–haematotoxicity and hepatotoxicity in male albino Wistar rats. Four groups, of twelve male rats each, were orally exposed to graded concentrations of nct for 28 days. After the 28th day of exposure, six rats in each group were sacrificed and blood samples collected for *nct* induced–haematotoxicity and hepatotoxicity analyses. The remaining six rats in each group were withdrawn from exposure for the next 28 days, after which they were sacrificed, blood samples collected and analyzed for any possible recovery effect from exposure-induced haematotoxicity and hepatotoxicity. The results confirmed that exposure of male rats to *nct* for 28 days caused a significant ($P<0.05$) concentration-dependent increase in haematotoxic and hepatotoxic indices, compared to the control. However, 28 days withdrawal from exposure produced a significant ($P<0.05$) reduction in the recorded haematotoxic and hepatotoxic indices, compared to the *nct* exposed groups. The results obtained for rats withdrawn from exposure were within the same range as those obtained for the control group, indicating that withdrawal from exposure may reverse the haematotoxic and hepatotoxic effects associated with exposure to *nct* in male rats.

Biography

Friday E. Uboh completed his Ph.D in Biochemistry at the age of 35 years from University of Calabar, Calabar, Nigeria. He is presently the Acting Head of Biochemistry Department, University of Calabar, Calabar, Nigeria. He has published more than 40 papers in reputable journals and serving as an editorial board member of repute.