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## Protective effect of vitamins A and E against diesel fuel-induced hepatotoxicity in rats

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Diesel fuel has been reported to cause hepatotoxicity in experimental animal models. This study assessed the protective effect of Vitamins A and E against diesel fuel-induced hepatotoxicity in rats. Vitamins A (retinol) and E( $\alpha$ -tocopherol), at prophylactic dosage (400 and 200 IU/kg/day, respectively) were orally administered, separately and as combined therapy, to rats orally exposed to 4.0 ml/kg body weight of diesel fuel, once daily for 30 days. Serum lipid profile, including cholesterol, triglycerides, low density lipoproteins (LDL), very low density lipoproteins (VLDL) and high density lipoproteins (HDL); serum liver enzymes, including alanine and aspartate aminotransferases (ALT and AST), alkaline phosphatase (ALP) and gamma glutamyltransferase (GGT) activities; and liver tissue oxidative stress bioindicators, including malondialdehyde, catalase and superoxide dismutase (SOD) activities, were estimated using standard methods. A significant ( $p < 0.05$ ) increase in serum cholesterol, LDL, triglycerides, VLDL, liver tissue malondialdehyde levels, serum ALT, AST, ALP and GGT activities; and a significant decrease in serum HDL level, liver tissue catalase and SOD activities were recorded for rats orally exposed to diesel fuel, compared to control. Concomitant administration of vitamins A and E, respectively, to rats exposed to diesel fuel produced a significant ( $p < 0.05$ ) increase in serum HDL level, liver tissue catalase and SOD activities; decrease in serum cholesterol, triglycerides, LDL, VLDL, liver tissue malondialdehyde levels, serum ALT, AST, ALP and GGT activities; with vitamin E showing a higher potency than vitamin A. However, the effect of combined therapy of vitamins A and E was not significantly different ( $P > 0.05$ ) from that recorded for individual vitamins. The results of this study indicated that vitamins A and E provide protection against diesel fuel-induced hepatotoxicity; and that vitamin E is a more potent antioxidant than vitamin A in rats.

### Biography

Friday E Uboh has completed his PhD at the age of 35 from University of Calabar, Calabar, Nigeria, and is presently an Associate Professor of Biochemistry, with Toxicology as his area of research interest. He served as the acting Head of Biochemistry Department in the Department of Biochemistry University of Calabar, Calabar, Nigeria, from 2011 to 2013. He is a member of Nigerian Society of Biochemistry and Molecular Biology, and Institute of Public Analysts of Nigeria. He has more than 60 papers published in reputable journals, and is a reviewer and editorial board member of many journals of repute. He has also presented many conference papers, locally and internationally.

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