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Glucose 6 phosphate dehydrogenase and haematological activities of artemether and lumefantrine in non-malaria infected rats

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The effects of artemisinin derivatives, artemether and lumefantrine on the activity of glucose 6-phosphate dehydrogenase (G6PD) and some haematological parameters in rats (Rattus novergicus) were studied. The experimental animals were randomly distributed into four groups: those administered Tween 80 (control), those administered artemether (8 mg/kg body weight), those administered lumefantrine (48 mg/kg body weight) and those co-administered artemether (8 mg/kg body weight) and lumefantrine (48 mg/kg body weight). The drugs were orally administered twice daily for three days to half of the animals while the remaining half were dosed for six days. Animals were subsequently anaesthetized in diethyl ether, blood samples were collected by cardiac puncture and the organs were excised and weighed. The following parameters were assessed in blood and liver homogenate: glucose, G6PDH, packed cell volume (PCV), haemoglobin (HB), white blood cell count (WBC), neutrophil, leukocyte, eosinophil, monocyte and basophil. After 3 days of administration, results showed significant decreases ($p < 0.05$) in plasma and homogenate glucose, PCV, HB and WBC levels; and there was a significant increase ($p < 0.05$) in G6PD activity. Furthermore, after 6 days of administration, there was no significant difference ($p > 0.05$) in plasma and homogenate glucose, G6PD activity and haematological parameters. It could be concluded that the administration of artemether and lumefantrine after 3 days to non-malaria infected rats showed hypoglycaemia and reduced haematological indices, while increasing G6PD activity.

Biography

Dr. Abiodun Humphrey Adebayo holds a PhD degree in Biochemistry and has been actively involved in the sustainable use of indigenous medicinal plants. He is also involved in the safety evaluation of locally used medicinal plants using biochemical, haematological and hispathological indices of toxicity. He has published in reputable international journals. He reviews for some high impact journals and also serves as an editorial board member of some reputable international journals. Dr. Adebayo, who chairs the Covenant University Community Development Impact Initiative, is currently a faculty in the Department of Biological Sciences, Covenant University, Ogun State, Nigeria.

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