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Acute and sub-acute toxicity of ethanolic and aqueous extracts of *Tephrosia vogelii*, *Vernonia amygdalina* and *Senna occidentalis* in rodents

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There is intense search for new plant-derived medicines to match the ever increasing prevalence of drug resistance. The efficacy studies need to be supported with toxicity profiles for optimum use of three commonly used plants against helminthosis in Uganda.

Objective: To evaluate the acute and sub-acute toxicity of ethanolic and aqueous leaf extracts of *Tephrosia vogelii* (TV), *Vernonia amygdalina* (VA) and *Senna occidentalis* (SO).

Methods: In the acute study, 90 female Swiss albino mice in 30 groups of three were orally administered with ethanolic or aqueous extracts of TV, VA or SO according to OECD guidelines. Five doses; 3500 to 15000 mg/kg were given and 0.5ml of Goodwin's physiological solution as negative control. The mice were monitored daily for 14 days. In the sub-acute study, 100 Wistar albino rats in 10 groups were dosed orally daily with aqueous plant extracts at 200, 400 and 600mg/kg for 28 days. The negative control group received Goodwin's solution. On day 29, the rats were sacrificed to collect blood for haematology and serum for biochemical analysis.

Results: Ethanolic extract of TV had LD₅₀ of 5124 mg/kg, whereas both extracts of VA and SO had LD₅₀ >10000mg/kg. Continued exposure of rats to 600 mg/kg doses of SO and VA extracts led to elevation of ALT, AST and ALP and cholesterol in the treatment groups (p<0.05). SO and VA at 600 mg/kg elevated urea and uric acid; depressed bilirubin while VA and TV 600 mg/kg caused the reverse.

Conclusion: SO and VA were hepato-protective while TV was slightly hepatotoxic in a dose-response manner. The safety of the aqueous leaf extracts of TV, VA and SO at high doses makes them safe at currently non-standardised doses used for animal treatment. Continued use of water extracts of these plants is recommended.

Biography

Immaculate Nabukenya is a highly motivated scientist with 10 years of experience in health and agricultural research for development. During this time, she has worked with international and private sector and government entities. Immaculate is a veterinarian with Master's training in Clinical Epidemiology and Biostatistics; currently finalizing her PhD studies at Makerere University Kampala, Uganda and Swedish University of Agricultural Sciences, Uppsala, Sweden. Her PhD work is focused on understanding anthelmintic resistance and evaluation of alternative plants used in traditional medicine to treat helminthosis in goats in Uganda. Her personal goal is to lecture and engage in health-related biosocial research using principles of Epidemiology, Biostatistics, Information Technology, International Public Health and Natural Product Development.

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