

ABSTRACT

Ethnopharmacological relevance: *Aristolochia ringens* Vahl. (Aristolochiaceae) is used traditionally in Nigeria for managing a number of ailments including gastrointestinal disturbances, rheumatoid arthritis, pile, insomnia, oedema, and snake bite venom. Some studies in our laboratory have demonstrated a scientific justification for some of such uses. This study aims at investigating the toxicological actions of the aqueous root extract of *Aristolochia ringens* (AR).

Materials and methods: Brine shrimp lethality assay was carried out using 10, 100 and 1000 µg/ml of the extract. Oral and intraperitoneal acute toxicity tests were carried out using mice. The effect of sub-acute (30 days) repeated oral exposure to the extract at 10, 50 and 250 mg/kg in rats was also evaluated via weekly assessments of body weights and general observations as well as end of exposure haematological, biochemical and histo-logical examinations of blood and tissue samples of treated rats. Phytochemical analyses to determine the presence of aristolochic acid I in the extract was also carried out using high performance liquid chromatography (HPLC).

Results: The aqueous root extract of *A. ringens* showed potential for biological activity and cytotoxicity with an LC₅₀ of 175 µg/ml in brine shrimps. AR was found to be relatively safe on acute oral exposure with LD₅₀ estimated to be greater than 10 g/kg, while its LD₅₀ on intraperitoneal administration was 407.38 mg/kg. Upon 30 days sub-chronic exposure, AR induced significant weight loss in female rats, enlargement of male rats' stomach, oxidative stress in male and female rats' kidney and liver tissues and disruption of leukocytes level in female rats. It also showed evidence of kidney and liver injuries inducible by oxidative damage and the potential to cause male sterility. HPLC revealed the presence of 0.003 mg/1 g of aristolochic acid in AR.

Conclusion: These results show that AR contains detectible aristolochic acid I and has potential to induce toxic responses. Caution must therefore be exercised in its medicinal application especially when required for a prolonged use.