

Preliminary studies on the physicochemical properties of the root of *Aristolochia albida* plant

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Abstract

The root of *Aristolochia albida* plant is believed to have good medicinal values. Other cultures believed that it has some mystical powers. The root of *Aristolochia albida* were obtained, dried and pulverized. It was used for the physicochemical analysis of the components present. The hexane, aqueous and methanolic extracts were phytochemically screened to determine the secondary metabolites present. Also, the root sample was used for proximate and spectrophotometric analysis. The results showed that both the aqueous and methanol extracts of the root of *Aristolochia albida* plant contain phytochemicals like alkanol, tannin, flavonoid, cardiac glycoside and Terpenoids whereas the extract of n-hexane contain alkanol, tannin, flavonoid, cardiac glycoside, saponin and Terpenoids. Also, the proximate analysis of the extracts showed that the root of *Aristolochia albida* had ash content of 11.83(mg/100g), Carbohydrates of 45.37(mg/100g), Crude protein of 19.36 (mg/100g), Fat of 10.21(mg/100g), Crude fibre of 9.38(mg/100g) and Moisture content of 3.75(mg/100g). The mineral contents of the plant showed that K was 24.93(mg/100g), Na was 33.54 (mg/100g), Ca was 33.38(mg/100g), Mg was 39.53 (mg/100g) and Zn 47.83(mg/100g). More studies should be carried out to determine its mystical powers and the component responsible for that.

To do the phytochemical screening and then to measure total phenols, condensed tannins, flavonoids of aqueous, hydroethanolic and ethanolic extracts of *Aristolochia albida* Duch. in order to identify the best preparation technique and extraction solvent. The antiradical activity of the different extracts of this plant were evaluated to determine the extract that has the best anti-radical activity. *Aristolochia albida* Duch. is a medicinal plant from the Aristolochiaceae family, widely used in traditional medicine in Benin. In this work ethanolic, hydroethanolic and aqueous extract were prepared from the leaves of this plant. The quantitative estimation of total phenols, tannins and flavonoids by the colorimetric method showed that the extracts are rich in these compounds. Evaluation of antioxidant power was performed using the method of DPPH free radical trapping. The result indicated that The ethanolic extract of *Aristolochia albida* (IC₅₀ = 0.23 mg/ml, IC₅₀ = Concentration inhibiting 50% of reaction) showed more antioxidant and anti-radical capacity compared to hydroethanolic extract (IC₅₀ = 0, 62 mg/ml) and the aqueous extract (IC₅₀ = 0. 65 mg/ml). Conclusion and application of results: Overall, there is a correlation between anti-radical

powers and phenolic contents phytoconstituents (polyphenols, flavonoids, tannins) extracts of the plant studied.

Aristolochia baetica (*A. baetica*) is a wild species of Aristolochiaceae family; its roots are used by Moroccan people against cancer for many years ago. The objective of the study was to investigate the phytochemical screening, acute and subacute toxicity of *A. baetica* roots growing in the north of Morocco. Qualitative and quantitative analyses of *A. baetica* roots were performed using standard methods; the acute toxicity of the root extract of the studied plant was assessed in mice by gavage of single doses of 1, 2, and 4 g/kg body weight for 14 days; by the time the subacute toxicity was done using repeated doses 1, 1.5, and 2 g/kg/day for 28 days. Histological changes and biochemical parameters as markers of kidney and liver function were evaluated. The results of phytochemical screening showed the presence of polyphenols, tannins, alkaloids, flavonoids, saponins, and the absence of anthraquinones, sterols, and terpenes. The results of acute toxicity showed the absence of mortality and signs of toxicity in groups treated with 1 and 2 g/kg; however, the clinical signs of toxicity were important and the rate of mortality was estimated at 16 % in the group treated with 4 g/kg. *Aristolochia indica* L. (Aristolochiaceae) has long been used in Indian subcontinent in the traditional system of medicine to treat cholera, fever, bowel troubles, ulcers, leprosy, skin diseases, menstrual problems and snakebites. The plant is also used as emmenagogue, abortifacient, antineoplastic, antiseptic, anti-inflammatory, antimicrobial, antipyretic, antifertility and antispermatogenic agent. Aristolochic acid, a major active constituent of the plant is reported to cause cancer, nephropathy, sister chromatid exchange and is a potent abortifacient. The present review deals with the different scientific studies and reports available in different aspects of this plant in the areas of Morphotaxonomy, Phytochemistry, Pharmacology, Medicoethnobotany, Tissue culture and Chromosomal study.

The results of subacute toxicity showed several changes of serum parameters registered in groups treated with 1.5 and 2 g/kg/day, respectively. The results showed also the absence of histological injuries in groups treated with 1 and 1.5 g/kg/day; meanwhile, the histological alterations were remarkable in treated group with the highest dose administered of 2 g/kg/day. The outcome of this work showed that the roots' extract of the studied plant was toxic in mice with repeated doses, but no toxic effect was observed with a single dose under 4g/kg.