



BIOLOGICAL EVALUATIONS OF DIFFERENT EXTRACTS FROM *PASSIFLORA SUBEROSA* L. LEAVES

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Previously we have shown that leaves of *Passiflora suberosa* L. (family Passifloraceae, commonly known as devil pumpkin) can be used to combat diabetes and high cholesterol levels.¹ The present study evaluated *in vitro* antioxidant, antihaemolytic, cytotoxic and antimicrobial potentials of different extracts of *P. suberosa* leaves. Aqueous, methanol, chloroform and hexane extracts of leaves obtained under reflux conditions were subjected for phytochemical screening according to previously established methods. Aqueous and methanol extracts of *P. suberosa* leaves possessed more phytochemicals, thus those extracts were subjected for further evaluations. Antioxidant activity was determined using 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay. Antihaemolytic activity was studied using cow blood, while cytotoxic activity was determined using the brine shrimp lethality assay. Antibacterial activity against three Gram-positive (*Bacillus subtilis*, *Staphylococcus aureus* and *Enterococcus faecium*) and three Gram-negative bacteria (*Pseudomonas aeruginosa*, *Salmonella typhimurium* and *Escherichia coli*) was carried out using agar well diffusion assay and broth dilution assay. The hexane extract revealed the presence of alkaloids, flavonoids and saponins while the chloroform extract revealed the presence of saponins and anthraquinones. Alkaloids, unsaturated sterols, triterpenes, saponins, flavonoids and tannins were observed in both methanolic and aqueous extracts. Proanthocyanidins were observed only in the aqueous extract. According to DPPH assay, both aqueous (IC₅₀: 74.33 µg/ml) and methanol (IC₅₀: 418.67 µg/ml) leaf extracts exhibited significantly potent antioxidant activities. Potent antihaemolytic activities were obtained with the aqueous extract (IC₅₀ value: 80.08 µg/ml) than the methanol extract (IC₅₀ value: 610.25 µg/ml). Similar results were observed in the brine shrimp lethality assay. The LC₅₀ value of the aqueous extract (60.26 µg/ml) was significantly lower than that of standard potassium dichromate (96.31 µg/ml). Only the methanol extract exhibited potent antibacterial activities against all the 6 strains of Gram-negative and Gram-positive bacterial with more potent activity against Gram-negative bacteria with MIC value less than 6.25 µg/ml. Present findings suggest that aqueous extracts of *P. suberosa* leaves possess potent natural antioxidant and cytotoxic potentials while methanol extracts were more effective against harmful bacterial strains. Hence, extracts from *P. suberosa* leaves can be considered as imminent candidate for treatment of cancer and infectious diseases.

Keywords: *Passiflora suberosa*, Phytochemicals, Antibacterial, Antioxidant, Cytotoxicity.

¹ Sudasinghe SAHP, Peiris LDC. Hypoglycaemic effect of aqueous leaf extract of *Passiflora suberosa* L. in normal mice possible mechanisms of action (abstract). International Forestry Symposium 20th October Negombo, Sri Lanka, 2015; p16.