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***In vitro* Screening of Antioxidant and Anti-inflammatory Activities of Plant Extract
*Adenanthera pavonina***

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Abstract

Adenanthera pavonina (AP) is a medicinal herb used in traditional systems of medicine in Sri Lanka. It is considered a rich source of bioactive compounds as they are able to produce a great variety of secondary metabolites with great anticancer and antioxidant properties. In the present study, the bark of the plant was used and water extract was prepared in order to screen Total Phenolic Content (TPC), Total Flavonoid Content (TFC), Ferric ion reducing power, DPPH radical scavenging capacity, inhibition of lipid peroxidation, inhibition of protein oxidation and inhibition deoxyribose oxidation. Anti-inflammatory activity was screened *in vitro* using Human Red Blood cell Membrane stability assay (HRBM) and inhibition of protein denaturation assay. All methods were carried out according to the standard protocol. The TPC and TFC were 80.3±0.1 mg GA/g (Gallic Acid/g) and 46.1±0.1 mg EGCG/g (epigallocatechin gallate /g) respectively. The DPPH radical scavenging capacity, inhibition of lipid peroxidation, protein oxidation and deoxyribose oxidation were IC₅₀, 15.8±0.5 (Gallic acid, 4.5±0.3 µg/ml), 46.1±0.5 µg/ml (Ascorbic acid, 58.4±2.2 µg/ml), 72.6±3.1 µg/ml (Ascorbic acid, 51.2±0.1 µg/ml) and 7.4±0.7 µg/ml (Ascorbic acid, 8.7±0.6 µg/ml) respectively. Reducing power of the AO extract increased with the concentration. HRBM and inhibition of BSA denaturation of AO extract were IC₅₀ that 49.7±1.4 µg/ml (Diclofenac sodium, 47.8±2.1 µg/ml) and 29.1±1.5 (Diclofenac sodium 23.8±3.6 µg/ml) respectively. The results of the study suggest that the bioactive molecules present in the AP water extract can be used as a prototype for the development of new drugs or as a source of antioxidants and anti-inflammatory pharmaceutical raw material.

Keywords: *Adenanthera pavonina*, Inhibition of lipid peroxidation, Inhibition of protein oxidation, Inhibition deoxyribose oxidation.