

Total antioxidant activity and polyphenol content of selected medicinal plant extracts used for the treatment of chronic kidney disease in Sri Lanka

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Introduction & Objectives:

Medicinal plant extracts are in the limelight as novel nephroprotective agents targeting chronic kidney disease (CKD). Oxidative stress is considered to be an important pathogenic mechanism in CKD. The antioxidant potential in plant extracts have shown to contribute to nephroprotection in vivo. The objective of the study was to determine the total antioxidant activity and the polyphenol content of five selected medicinal plant extracts in order to identify and investigate their nephroprotective potential in vivo.

Methods:

The aqueous refluxed leaf extracts of *Abelmoschus moschatus* (Kapukinissa), *Asparagus falcatus* (Hathawariya), *Plectranthus amboinicus* (Kapparawalliya), whole plant extract of *Barleria prionitis* (Katukaradu), and root extract of *Vetivaria zizanioides* (Savendara) were used. The antioxidant activity was determined by 2, 2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging assay (reference compound: L-Ascorbic acid) and the total polyphenol content using Folin-Ciocalteu method (reference compound: gallic acid).

Results:

The DPPH radical scavenging activity was in the descending order of *A. moschatus* (IC₅₀ – 63.7±0.2 µg/mL), *A. falcatus* (IC₅₀ – 54.3±9.6 µg/mL), *P. amboinicus* (IC₅₀ – 440.0±39.0 µg/mL), *B. prionitis* (IC₅₀ – 457.0±38.3 µg/mL) and *V. zizanioides* (IC₅₀ – 478.8±70.2 µg/mL). The total polyphenol concentration varied from 1.3±0.3 to 5.8±0.3 mg GAE/g DW in the selected medicinal plant extracts.

Conclusion:

All the medicinal plant extracts exert relatively high antioxidant activity in vitro. The polyphenols present in the plant extracts may attribute to the total antioxidant activities. The selected extracts are likely to exert nephroprotection in free radical pathologies in CKD.