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Evaluation of Some Medicinal Plant Extracts for *In Vitro* Antioxidant Properties

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Over the past few decades investigations for polyphenolic compounds in medicinal plants have gained importance due to their antioxidant activities. The literature reveals that natural antioxidants are of great value in preventing the onset or progression of many diseases such as Diabetes Mellitus. Antioxidants of plant origin have reported as promising drugs for free radical pathologies of Diabetes Mellitus. This study aims to evaluate *in vitro* antioxidant properties of four widely used medicinal plant extracts with proven *in vivo* hypoglycaemic activity.

The refluxed aqueous stem bark extract of *Gmelina arborea* (Et-demata), *Spondias pinnata* (Emberella), *Kokoona zeylanica* (Kokun), *Syzygium caryophyllatum* (Heen-dan), were used for the experiments (0.05 g cm⁻³). Total polyphenol content was determined according to the Folin-Ciocalteu method using gallic acid (GA) as the reference compound. The total antioxidant activity was evaluated by DPPH (2, 2-diphenyl-2-picrylhydrazylhydrate) assay, nitric oxide radical inhibition assay and FRAP (ferric reducing antioxidant power) assay with L-ascorbic acid as the reference compound. The antioxidant activity is expressed as IC₅₀ in DPPH and nitric oxide scavenging assays. All plant extracts and standard compounds exhibited antioxidative activities with satisfactory total polyphenol content. The total polyphenol content of all extracts ranged within 0.41-13.05 GAE (Gallic acid equivalents) mg g⁻¹. The aqueous stem bark extract of *Gmelina arborea* possessed the highest antioxidant activity measured as scavenging of DPPH radical (IC₅₀ = 36.89 ± 1 µg cm⁻³), nitric oxide radical (IC₅₀ = 139.57 ± 4 µg cm⁻³) and reducing power (8.98 ± 0). The total polyphenol content and antioxidative activity was in the decreasing order of *Gmelina arborea*, *Spondias pinnata*, *Syzygium caryophyllatum* and *Kokoona zeylanica* (P < 0.05). The reference values in DPPH, nitric oxide radical scavenging and FRAP assays were 4.52 µg cm⁻³, 28.59 µg cm⁻³, 2.00 respectively. The results reveal that all plant extracts are potential sources of natural antioxidants. The *in vitro* antioxidant potential of the four plant extracts under investigation may be attributed to their polyphenolic compounds.

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