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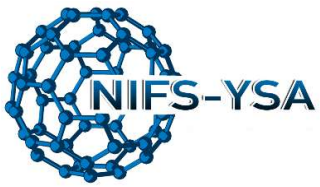

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Antioxidant activity and total phenolic content of some underutilized vegetables in Sri Lanka

H.M.H.P. K Herath[1,2], A.G.A.W. Alakolanga[1,3], N.S. Weerakkody[2], N.K.B. Adikaram[1], L. Jayasinghe[1*]

[1]*National Institute of Fundamental Studies, Kandy, Sri Lanka.*
[2]*Department of Agriculture and Plantation Engineering, Open University Sri Lanka, Nawala*
[3]*Department of Export Agriculture, Faculty of Animal Science and Export Agriculture, Uva Wellassa University, Badulla*

[*]*lalith.ja@nifs.ac.lk*

Background: Underutilized vegetables in Sri Lanka have many nutritional and medicinal values. Most of these properties are due to the chemical profile of the plants including both primary and secondary metabolites. Phenolic compounds are secondary metabolites with physiological functions such as antioxidants, anti-carcinogens and as anti-inflammatory agents. Antioxidants reduce the oxidative stress in cells and are useful in treating many human diseases including cancer, cardiovascular and inflammatory diseases.

Objectives: To determine antioxidant activity and total phenolic content of pod with seeds in *Phaseolus lunatus* (Lima bean), *Momordica dioica* (Spiny gourd) and *Psophocarpus tetragonolobus* (Wing bean).

Methods: The samples were collected at matured stage and air dried. Dried samples were ground with a domestic blender and extracted with Ethyl acetate and Methanol successively. The extracts were evaporated using a rotary evaporator (<40 ℃) to obtain crude extracts. The antioxidant properties were studied using 2,2 Diphenyl-1-picrylhydrazyl (DDPH) assay with ascorbic acid as the reference and the polyphenol content was measured as gallic acid equivalents using Folin-Ciocalteu method. The experiment was design with 3 replicates.

Results: According to this study, the phenolic content of ethyl acetate extract of lima bean, spiny gourd and wing bean showed high total phenolic contents 42.83 mg /g GAE (Gallic acid equivalent), 29.36 mg/g GAE and 66.32 mg/g GAE respectively. In methanol extract of lima bean, spiny gourd and wing bean were found at 41.93 mg/g GAE, 26.70 mg/g GAE, 35.02 mg/g GAE respectively. Spiny gourd of methanol extract showed high IC_{50} value (3347.96 ppm) compared to lima bean and wing bean of antioxidant activity. The total phenolic content is relatively high in wing bean and lima bean compared to spiny gourd in both ethyl acetate and methanol extracts.

Conclusion: These results prove the importance of these vegetables as a food commodity in relieving oxidative stress.

Keywords: *Antioxidant, Medicinal, Phenolic content, Plant extract, Vegetables*