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Variation of phytochemicals and antioxidant capacity with the maturity of pods and different parts of *Moringa oleifera* Lam.(Moringaceae)

A.D.G.L. Dilruni,[1] D.C. Abeysinghe,[1*] and R.M. Dharmadasa[2]

[1]*Department of Plantation Management, Faculty of Agriculture and Plantation Management, Wayamba University of Sri Lanka, Makandura, Gonawila 60170, Sri Lanka*
[2]*Industrial Technology Institute, Baudhaloka Mawatha, Colombo 07, Sri Lanka*

Moringa oleifera Lam. is a multipurpose, industrially important, medicinal plant belonging to the family Moringaceae. Due to lack of information on variation of phytochemicals with pod maturity and their distribution in different parts, the present study was undertaken to investigate the phytochemical content at different maturity stages of the pods and different parts of the plant.

Different plant parts *viz.* leaf, flower, bark, stem, root and different maturity stages of pods were collected from *M. oleifera* in the Western Province of Sri Lanka, and air-dried, powered samples of each plant parts were prepared. Phytochemicals were extracted using 80% methanol.The total phenolic content (TPC) and total antioxidant capacity (TAC) were determine using the modified Folin-Ciocalteu colorimetric method and ferric reducing antioxidant power (FRAP) assay respectively. Statistical comparison of the mean values of three replicates was performed by the General Linear Model (GLM) of ANOVA followed by Turkey Multiple Range Test using SAS.

The present study revealed that the tested phytochemicals and antioxidant capacity are distributed in different parts and all maturity stages of the pods of *M. oleifera*. A significantly higher TAC and TPC were found in flowers. The order of increasing concentration in different parts of *M. oleifera* was flower>leaf >root > bark>stem, whereas that in different maturity stages of pods was immature> 50% mature>75% mature>fully mature. A positive correlation (R^2 = 0.94, $p<0.001$) between phenolic compounds and antioxidant activities of *M. oleifera* extracts was observed. Different plant parts of *M. oleifera* reveal strong antioxidant activity and could serve as potential source of natural antioxidants to food and health industries.

Keywords: Antioxidant capacity, Flavonoids, *Moringa oleifera*, Moringaceae,Phenolics, Plant parts.

abeysinghedc@yahoo.com Tel: +94 312299704 / +94 718068809