



205/B

### Comparison of existing *Phyllanthus* populations by means of phytochemical contents and its bioactivity

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*Phyllanthus debilis* Klein ex Willd (Euphorbiaceae), also known as "Pitawakka" in Sinhala, is therapeutically important medicinal plant widely used in traditional and ayurveda systems of medicine for the treatment of jaundice, sickle-cell anemia, diarrhoea, wounds, inflammation, intestinal worms, scabies, ring worm, gall stones and kidney stones in Sri Lanka and other Asian countries.

Eventhough, morphologically different populations exist in different agroclimatic regions in Sri Lanka, all are considered to be *Phyllanthus debilis*, and hence authentication of existing populations is a timely requirement. Therefore, the present study was carried out to compare the existing *Phyllanthus debilis* populations by means of total phenol content (TPC), total flavonoid content (TFC), and total antioxidant capacity (TAC) of different parts (leaf, stem and root). TPC, TFC, and TAC were determined using the Folin-Ciocalteu method, the colorimetric method developed by Liu *et al.*, 2002, and the Ferric Reducing Antioxidant Power Assay (FRAP) method, respectively. The present study indicated the presence of tested phytochemicals (TPC, TFC, and TAC) in all three parts (leaf, stem, root,) of all tested populations of *Phyllanthus debilis*. Significantly higher TAC and TPC were reported in leaf extracts of Red-green and Red populations, respectively. However, significantly higher TFC content was reported from roots of White populations. The present study investigated Total Antioxidant Capacity (TAC), Total Phenolic Content (TPC) and Total Flavonoid Content (TFC) of different parts of selected *Phyllanthus* population for the first time in Sri Lanka. Correlations with strong significance were observed between TAC and tested secondary metabolites, TPC ( $R^2=0.989$ ) and TFC ( $R^2=0.989$ ).

Keywords: *Phyllanthus debilis*, Euphorbaceae, Antioxidant capacity, Flavonoids, Phenolic

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