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Study of antioxidant potential, total phenolic and flavonoid content of selected herbal plant infusions used as Sri Lankan traditional herbal beverages

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Twelve Sri Lankan plant material based infusions extensively used in indigenous medicine and traditional herbal beverages namely Sepalika (*Nyctanthes arbor-tristis*), Beli (*Aegle marmelos*), Iramusu (*Hamidesmus indicus*), Ranawara (*Cassia auriculata*), Nelli (*Phyllanthus emblica*), Rasakinda (*Tinospora cordifolia*), Polpala (*Aerva lanata*), Babila (*Sida rhombifolia*), Neeramulliya (*Hygrophila schulli*), Thippili (*Piper longum*) and Venivel (*Coscinium fenestratum*) were investigated for their antioxidant potential by three assays; 2,2-diphenyl-1- picrylhydrazyl assay (DPPH), 2,2-azino-bis-3-ethylbenzothiazoline-6-sulphonic acid (ABTS) assay and Ferrous reducing antioxidant power assay (FRAP). Total phenolic content (TPC) and total flavonoid content (TFC) were determined by using colorimetric assays. Traditional herbal beverages were formulated by boiling dried plant materials with water (1:25 w/v). Results revealed that *Nyctanthes arbor-tristis* infusion contained significantly ($p<0.05$) highest antioxidant potential as measured by DPPH, ABTS and FRAP (TE mg/ mL) assay; 62.97±0.00, 39.59±0.50 and 201.09±8.88 respectively and Infusion of *Phyllanthus emblica* showed the second highest antioxidant potential for above three assays as 60.55±0.03, 38.48±2.29and 181.55±6.49 (TE mg/ mL) respectively. *Nyctanthes arbor-tristis* infusion contained the highest TPC (209.9±1.91 GAE mg/mL) whereas *Phyllanthus emblica* infusion showed the highest TFC (37.5±0.38QE mg/mL). Moreover, positive correlations ($r > 0.6$) were found between phenolic compounds, flavonoid and the antioxidant potential by three assays. The results of the present study confirm the high potential of the traditional herbal beverages as a healthy drink and the suitability to use as home remedies for different ailments associated with potential natural antioxidants and phenolic compounds.

Keywords: antioxidant potential, *Nyctanthes arbor-tristis, Phyllanthus emblica,* Sri Lanka, traditional herbal beverages

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