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Total phenolic content and free radical scavenging activities of ethanolic extracts of fruits and vegetables commonly used in Sri Lanka

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Increasing evidence shows that high consumption of fruits and vegetables has health benefits in the prevention of non-communicable diseases such as cardiovascular disease, diabetes and cancer. Natural antioxidants present in these fruits and vegetables protect individuals from oxidative stress and reduce the risk of associated diseases. The aim of this study was to quantify the antioxidant activity and total phenolic content of edible portions of fourteen fruits and vegetables namely king yam, pumpkin, tomato, carrot, snake guard, ladies fingers, *Gotukola, Mukunuwenna*, mango, banana, papaya, bael fruit, wood apple and pineapple.

The phenolic contents of samples were determined by the Folin Ciocalteau method and antioxidant activity was quantified using two methods, namely, ABTS (2, 2'-azino-bis (3-ethylbenzothiazoline-6-sulphonic acid) and DPPH (1,1-diphenyl-2-picrylhydrazyl) assays. In the ABTS assay the antioxidant activity of each sample was expressed as Trolox equivalent antioxidant capacity (TEAC), and in the DPPH assay, the antioxidant activity of fruits and vegetables was measured for their radical scavenging capacity and expressed as IC_{50} values.

Total phenolic content of fresh fruits and vegetables ranged between 98.5 455.0 mg GAE/g on fresh weight basis, while the highest values were obtained for bael fruit (455.0 mg GAE/g fresh weight) followed by carrot (301.2 mg GAE/g fresh weight). The TEAC values of fruits and vegetables under study, ranged between 1-15 µM Trolox, with the highest activity recorded in bael fruit (15 µM Trolox) whereas, the lowest antioxidant activity was obtained for banana (1 µM Trolox). Comparatively, the values determined by the DPPH method for bael fruit showed the highest antioxidant activity (5 mg/ml), similar to that observed from the ABTS method. The relationship between logarithmic values of TEAC value and IC_{50} values of all the samples of fruits and vegetables showed a good linearity (R^2 = 0.865) indicating similar trends in antioxidant activity, by ABTS and DPPH methods.

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