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Antioxidant properties of leafy vegetables consumed by Sri Lankans

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The present study reports the antioxidant properties (content of total phenols, flavonoids, ascorbic acid, reducing power, $DPPH^{\cdot}$ radical scavenging activity, antioxidant activity measured using molybdenum) of six varieties of leafy vegetables consumed by Sri Lankans namely *Ipomoea aquatica* (Sinh. Kankun), *Centella asiatica* (Sinh. Gotukola), *Alternanthera sessilis* (Sinh. Mukunuwenna) and the non conventional leafy vegetables *Cardiospermum halicacabum* (Sinh. Penela), *Passiflora edulis* (Sinh. Passion fruit) and *Lasia spinosa* (Sinh. Kohila).

Content of total phenols and free phenols were determined for aqueous and methanol extracts using Folin Ciocalteu reagent. The free flavonoid content was determined using $AlCl_3$ and the ascorbic acid using 2, 6-dichlorophenolindophenol method. Reducing power of potassium ferricyanide, free radical scavenging power by $DPPH^{\cdot}$ radical and total antioxidant activity using Mo (VI) were also determined. The results were subjected to statistical analysis by one way ANOVA.

The present study revealed that methanol is the best solvent for the extraction of phenols and flavonoids. Total phenols in aqueous extract of *A. sessilis* (3.04±0.27 g/100 g) was the highest while in the methanol extracts the highest was in *L. spinosa* (3.30 ± 0.25 g/100 g). *C. asiatica* is the best source of flavonoids while *C. halicacubum* is the poorest source. Ascorbic acid content ranged from 2631 (*P. edulis*) - 49 (*A. sessilis*) mg/100g (DW) for fresh leaves and 136 (*P. edulis*) – 27 (*A. sessilis*) mg/100 g for freeze dried leaves. *L. spinosa* had the highest reducing power while *A. sessilis* had the lowest. The reducing power was not directly related to the individual content of phenols, flavonoids and ascorbic acid. Total antioxidant activity deduced by the reduction of Mo (V) indicated that *L. spinosa* (2482 ± 536 mg/100 g) had the highest antioxidant activity while C. asiatica (384 ± 177 mg/100 g) had the lowest activity. Free radical scavenging activity determined using EC_{50} for $DDPH^{\cdot}$ indicated that *A. sessilis* had the lowest scavenging power while highest was observed with *I. aquatica* and *C. asiatica*. The result of this study indicated that the flavonoids, phenol and ascorbic acid does not bear a direct relation to the antioxidant activity and the reducing power and the synergistic effect of these compounds have to be considered in deducing the antioxidant activity. The present study indicates that *I. aquatica* is a good source of antioxidants.

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