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NUTRITIONAL PROPERTIES AND ANTIOXIDANT CONTENT OF COMMONLY CONSUMED COWPEA CULTIVARS IN SRI LANKA

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Four different cultivars of commonly consumed cowpeas, *Vigna unguiculata* (L.) Walp, Waruni (reddish brown colour), Bombay (speckled grey brown colour), Dawala (cream coloured with a black eye) and MI35 (pure cream colour) were analyzed for their proximate composition, total phenol content (TPC) and antioxidant activity (AOA). Cowpea cultivars, in their dried powdered form, in cold and hot water extracts, were used to estimate AOA by 2, 2-Diphenyl-1-picrylhydrazyl (DPPH) and Ferric Reducing Antioxidant Power (FRAP) methods. TPC was estimated by Folin-Ciocalteau method. Proximate composition, total dietary fiber (TDF), soluble (SDF) and insoluble dietary fiber (IDF) were analyzed according to AOAC standard procedures.

AOA, in µmol/g dry powder, measured by FRAP assay in cold extracts in the descending order were 27.49, 18.21, 11.46, 8.02 respectively for Waruni, Bombay, Dawala and MI 35. When extracted with hot water, significantly higher AOA (FRAP) values (µmol/g) but with same trend were observed for Waruni (35.28), Bombay (24.07), Dawala (12.36) and MI35 (10.94). FRAP based AOA among the different cultivars were significantly different. AOA based on DPPH assay showed a similar trend to the values obtained by FRAP assay. For the cold water extracts IC₅₀ values in μ g (DPPH method), were 350.95, 422.7, 582.2 and 586.6. In hot water extracts the values (µg) were 126.4, 255.7, 347.9 and 453.6. Significantly higher DPPH scavenging activity was noticed in hot extracts than cold extracts. TPC in mg/g dry powder for the cold extracts were 6.01, 4.62, 2.63 and 2.36 for Waruni, Bombay, Dawala and MI35 respectively. In hot extracts the values in mg/g dry powder were for Waruni (5.68), Bombay (5.57), Dawala (2.33) and MI 35 (1.70). Waruni and Bombay cultivars showed higher AOA and TPC while MI35 showed the lowest. A positive correlation ($r^2>0.97$) was observed between AOA and TPC in all cultivars of cowpea. Proximate analysis revealed no significant differences in the proximate composition among the 4 cultivars. Crude fat was highest in Dawala (3.66 %) and lowest in MI35 (3.24 %), crude protein was highest in Waruni (25.40%) and lowest in Dawala (22.97 %). Carbohydrate was 60.44 % in Dawala and lowest in Waruni (56.50 %). Crude fiber was highest in Bombay (6.85 %) and lowest in Dawala (5.99 %). The TDF was around 4% in the cultivars.

All four cultivars of cowpea have desirable amount of protein, carbohydrate and antioxidant content.

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