

## **Antioxidant activity and cyanide content of leaves of three different cassava varieties (*Manihot esculenta* Crantz)**

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Cassava leaves are commonly used as a vegetable among rural communities in Sri Lanka. They are nutritional as they contain different proteins, amino acids and vitamins as well as fibres. The aim of this study was to determine the antioxidant capacities and cyanide contents of three different varieties of cassava (MU-51, CARI 555 and KIRIKAWADI). Fresh cassava leaves were collected from the Department of Horticulture, Gannoruwa. Methanol extracts of air dried leaves were used for determination of antioxidant capacity using the 1, 1-diphenyl-2-picrylhydrazil (DPPH) assay. Ascorbic acid was used as the standard. The radical scavenging capacity of DPPH was expressed as the concentration of the sample which showed 50% radical scavenging capacity (IC<sub>50</sub>).

Fresh leaves were used to determine the cyanide content. Leaves were distilled in 0.5% phosphoric acid and the distillate was titrated against silver nitrate.

For DPPH, the IC<sub>50</sub> values of methanol extracts of leaves of MU-51, KIRIKAWADI and CARI 555 were 40 ± 2.23, 47 ± 2.05 and 50 ± 1.78 mg/l, respectively. Ascorbic acid gave an IC<sub>50</sub> value of 5.4 ± 1.28 mg/l. Therefore, the antioxidant capacities of methanol extracts of these three cassava varieties were about 10-fold lower than that of ascorbic acid. The cyanide contents of the three varieties of cassava were approximately similar with KIRIKAWADI, CARI 555 and MU-51 having cyanide concentrations of 48.6 ± 5.4, 46.76 ± 6.23 and 44.93 ± 7.23 mg/Kg, respectively. The acute lethal dose of hydrogen cyanide for humans is reported to be 0.5 - 3.5 mg/Kg body weight. Therefore, a large variation in the lethal dose, ranging from 30 - 210 mg of HCN for a 60 Kg adult, has been reported. According to this study, approximately 45 mg of cyanide is present in 1 Kg of fresh cassava which will not be at toxic levels for humans.

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