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Inter-varietal differences of mineral and fatty acid composition of coconut testa flour

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Coconut testa is the brown coloured external cover of coconut kernel which is removed during coconut processing industry. It is under-utilized and frequently used as animal feed. An attempt was made to utilize coconut testa flour as a functional ingredient in food processing industry. Aim of this study was to evaluate micro mineral and fatty acid composition of coconut testa flour of four indigenous cultivars of coconut namely san raman, gon thembili, ran thembili, TxT against commercial hybrid cultivated in Sri Lanka. Coconut testa flour was prepared by grinding dried, partially defatted coconut parings. Prior to mineral analysis using ICP spectrophotometer, flour samples were digested with 65% nitric acid. Fatty acid analysis of oils extracted from flour samples was carried out using a gas chromatography fitted with a flame ionization detector. Prior to fatty acid analysis, oil samples were converted to fatty acid methyl esters using methanolic KOH (AOCS, 1998). Results of fatty acid analysis showed that coconut testa flour is rich in a wide range of micro minerals and fatty acids. Mn was the most prevalent micro mineral (73.71 - 94.1 mg/ kg), followed by Zn (29.65 to 57.34 mg/ kg) and Cu (29.94 – 45.14 mg/kg). San raman variety contained maximal Fe and Mn contents while Ran thembili was rich in Cu, Zn, Ni. Lauric acid was the dominant fatty acid (42.65 - 45.97 %), followed by myristic acid (19.69 - 21.46 %) and palmitic acids (9.42- 10.24 %). Maximal lauric acid content was observed in Ran thembili while the least was reported in commercial hybrid. We can conclude that incorporation of coconut testa flour in food preparations will improve human health and wellbeing while at the same time, provide value to under-utilized by-product and a solution for waste disposal problem of coconut processing industry.

Keywords: *coconut, fatty acid, minerals, testa*