ASSESSMENT OF CHEMICAL PROPERTIES OF FLOUR FROM FOUR ACCESSIONS OF HINGURALA (*DIOSCOREA ALATA*)

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Abstract

Starchy tubers and root crops are important subsidiary foods in tropical and sub-tropical countries. Four underutilized accessions of Hingurala (*Dioscorea alata*) namely Maha hingurala, Suta hingurala, Heen hingurala and Hingurala were quantitatively analyzed for their chemical properties with a view to identify the potential of using as a raw material in value addition. The flour of four accessions was analyzed for its proximate compositions, mineral contents, phytochemicals, polyphenolic contents, antioxidants and fatty acid profiles. The highest moisture, free fat and crude fiber contents reported in Hingurala were (72.31±4.89 %), (0.7824±0.072 %) and (2.86±0.433 %) respectively. The highest protein content was reported in Maha hingurala (7.380±0.51 %). The ash content was highest in the Heen hingurala (3.275±0.781 %). The highest Na, Fe, Mg, Cu, Zn and Mn contents were reported in Suta hingurala. Maha hingurala and Heen hingurala reported the highest K and Ca contents respectively. The results showed a range of other compounds such as saponins (2.77-5.94 %) and alkaloids (0.003-0.022 %). Maha hingurala showed significantly ($p<0.05$) higher contents of flavonoid (17.47 mg quercetin/ 100g), total phenolic (117.82 mg/ GAE/100g) and antioxidant (14,370.7±24.7 TEAC µmol/ g) than other accessions. The most abundant fatty acids were palmitic acid (31.2-40.4 %) and Linolelaidic acid (22.6-48.2 %) in all four accessions. This study revealed the food values of newly identified four Hingurala accessions in terms of their nutritional and chemical properties. The use of flour from Hingurala accessions as an important raw material in value addition has to be studied further.

Key words: *Dioscorea alata, Proximate composition, Phytochemicals, Antioxidants, Polyphenols.*