Flour from Anthocyanin Extraction Residue of Dandila (*Dioscorea alata*) Yams for Food Applications

Menike W.A.E.M.P.[1 *], Sajiwanie J.W.A.[2], and Rathnayaka R.M.U.S.K.[3]

[1]*Faculty of Graduate Studies, Sabaragamuwa University of Sri Lanka, Sri Lanka*
[2]*Deaprtment of Food Science and Technology, Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka, Sri Lanka*
[3]*Deaprtment of Physical Science and Technology, Faculty of Applied Sciences, Sabaragamuwa University of Sri Lanka, Sri Lanka*
[*]*erandipremachandra@gmail.com*

Recently, several techniques have been developed to extract anthocyanin pigments from Dandila (*Dioscorea alata*) yams, due to their proven health benefits and applicability as a natural colorant for several food items. However, these studies have not focused on the utilization of the residual starchy portion of yams created after the pigment extraction. This leads to the wastage of yam residues. As a matter of un-attended, only a limited number of studies are available on this residual yam portion and their nutritional quality is still unknown. Therefore, this study aimed to convert the residual Dandila yam from microwave-assisted extraction of anthocyanin into flour and to analyse the nutritional and physical properties of the flour to minimize the wastage of yams during the pigment extraction. The residual Dandila yam portion remaining after the microwave-assisted anthocyanin extraction process was converted to flour by drying in a hot air oven below 40 ^{0}C. The standard procedures were used to determine the proximate composition and the physical properties of the flour. The mineral composition was analyzed with Atomic Absorption Spectrophotometry. Starch was the major nutrient component found in this flour, accounting for 70.89±0.71 % of the weight and the most abundant mineral was Potassium (12.98±0.00 mg/g) followed by phosphorus, magnesium, sodium, calcium, and zinc. The physical properties were as desired for flour. Therefore, the Dandila yam residue, remaining after the extraction of anthocyanin, can be successfully converted into flour which contains essential nutrients. Further, 100 g of flour is sufficient to meet the Recommended Daily Intake of sodium and zinc. The observed physical properties ensure the utilization of this flour in a variety of food formulations including, infant food formulations, soups, gravies, sausage, dough, processed cheese, bakery products and whipped toppings. However, the applicability of the flour in these formulations is required to be studied.

Keywords: *Anthocyanin, Dandila, Dioscorea alata, Pigments, Residual yam*