

Oral presentation: 177

Preliminary study on starch extraction ratio and nutritional composition of two cassava cultivars

R. K. L. Weerasinghe*, I. Wickramasinghe and M. A. D. Somendrika

Department of Food Science and Technology, Faculty of Applied Sciences,
University of Sri Jayewardenepura, Sri Lanka
*klakma707@gmail.com

Cassava (*Manihot esculanta*) is one of the most important food crop among tropical countries. Cassava has higher carbohydrate content and its tapioca starch and modified tapioca starch is highly used as an ingredient of many food products. The objective of this preliminary study was to compare the starch yields and analyze the moisture, fat and protein contents of the extracted starch of two cassava cultivars (Kirikawadi and Muthukawadi variety). Cassava starch was extracted using good quality mature cassava roots. They were cleaned to remove mud, peeled, washed and grated. Those grated roots were milled with tap water mixing in 1:4 ratio by using laboratory scale blender at low speed and filtered through a muslin cloth. Residue was repeatedly milled and filtered again. The suspension was kept to sediment the starch for overnight. The supernatant was decanted and the settled residue was collected into a drying tray and was dried at 60^oC for 5 hr, dried sample was ground using laboratory blender, sieved through a 300 µm sieve, packed in airtight pouch, sealed in airtight container and stored in cold room (<5^oC). Cassava starch yield was calculated. Moisture content, fat content and protein contents were analyzed by AOAC (2012) methods. The average extraction ratio of Kirikawadi variety and Muthukawadi variety were 0.13 and 0.11. The average starch yield of Cassava Kirikawadi and Muthukawadi varieties were 12.8% and 11.05%. The flesh of the roots of Kirikawadi and Muthukawadi varieties contained average moisture content of 51.77% and 53.08% respectively. The average range of moisture content of starch of Kirikawadi variety ranged from 16.08% to 16.97% and Muthukawadi variety ranged from 6.99% to 8.43%. The crude fat content of starch of Kirikawadi variety ranged from 0.31% to 0.36% and Muthukawadi variety ranged from 2.14% to 3.29%. The average crude protein content of starch of Kirikawadi variety ranged between; from 2.37% to 3.35% and it ranged from 2.46% to 2.53% in Muthukawadi variety starch. There was a significant difference (p<0.05) between the average moisture content of starch extracted from Kirikawadi and Muthukawadi. Furthermore, there was a significant difference (p<0.05) between the average fat content and there was no significant difference (p>0.05) between average protein content of starch extracted from Kirikawadi and Muthukawadi.

Keywords: Cassava, cassava starch, crude fat content, moisture content, starch extraction ratio