

Analysing the Functional Properties of Modified Cassava Starch Treated with Different Modification Treatments

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Cassava starch was isolated from fresh mature cassava roots of cassava variety MU51 and modified using four modification treatments as Pre-gelatinized modification, acidic modification and heat moisture treatment using air oven heating and pressure steaming. Functional properties (ph, moisture content, gelatinization temperature, swelling power, solubility, size of granules and viscosity) of the modified starch were compared with those of the native cassava starch. The ph value of native cassava starch was 4.73. All modification treatments caused for increasing the ph values of native starch while ph 7.02 values were recorded highest by acid treated starch. Swelling power of native cassava starch was 17.09% where pre-gelatinized treatment caused increasing of swelling power while other treatments caused decreasing. Solubility was recorded for native starch as 7.44% and pre-gelatinized treatment showed decreased solubility and other treatments caused for increasing the solubility of cassava starch. The swelled pre-gelatinized starch granules showed higher diameter (17.00 μ m) than native starch (11.33 μ m) and distorted acidic treatment starch granules showed lowest diameter (10.33 μ m). The cassava starch modified under pre-gelatinized had showed a great improvement in their gelatinization temperature with a value of 70°C compared with 67.5°C of the native starch, solubility of 6.06% compared with 7.44% of the native cassava starch and had higher and stable viscosities.

Keywords: Cassava starch, modified starch, pre-gelatinization, heat moisture treatment, acidic treatment.

Biography:

Indira Wickramasinghe is a Senior Lecturer attached to the Department of Food Science and Technology, University of Sri Jayewardenepura, Sri Lanka. She is the author of over 80 indexed, peer reviewed national and international research publications covering different fields of Food Science and Technology. She holds patents deriving from her research. Dr. Indira also functioned as the Head of the Department of Food Science and Technology where she contributed in planning the Department, while teaching and conducting research. She offers several course units to undergraduates and post graduates of the Department in the area of fisheries post-harvest technology, food processing and preservation, nutrition, crop post-harvest and meat science. Her research interest includes meat science, fisheries and crop post-harvest. In addition to these areas, she has been engaged with research on tea flavonoids and other herbal compounds of biological significance.