

Studies on the Proximate Composition and Functional Properties of Extracted Cocoyam Starch Flour

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Abstract : Cocoyam, a generic term for both xanthoma and colocasia, is a traditional staple root crop in many developing countries in Africa, Asia and the Pacific. It is mostly cultivated as food crop which is very rich in vitamin B6, magnesium and also in dietary fiber. The cocoyam starch is easily digested and often used for baby food. Drying food is a method of food preservation that removes enough moisture from the food so bacteria, yeast and molds cannot grow. It is one of the oldest methods of preserving food. The effect of drying methods on the proximate composition and functional properties of extracted cocoyam starch flour were studied. Freshly harvested cocoyam cultivars at matured level were washed with portable water, peeled, washed and grated. The starch in the grated cocoyam was extracted, dried using sun drying, oven and cabinet dryers. The extracted starch flour was milled into flour using Apex mill and packed and sealed in low-density polyethylene film (LDPE) 75 micron thickness with Nylon sealing machine QN5-3200HI and kept for three months under ambient temperature before analysis. The result showed that the moisture content, ash, crude fiber, fat, protein and carbohydrate ranged from 6.28% to 12.8% 2.32% to 3.2%, 0.89% to 2.24%, 1.89% to 2.91%, 7.30% to 10.2% and 69% to 83% respectively. The functional properties of the cocoyam starch flour ranged from 2.65ml/g to 4.84ml/g water absorption capacity, 1.95ml/g to 3.12ml/g oil absorption capacity, 0.66ml/g to 7.82ml/g bulk density and 3.82% to 5.30ml/g swelling capacity. Significant difference ($P \geq 0.5$) was not obtained across the various drying methods used. The drying methods provide extension to the shelf-life of the extracted cocoyam starch flour.

Keywords : cocoyam, extraction, oven dryer, cabinet dryer

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