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Drying Effect on the Proximate Composition and Functional Properties of Cocoyam Flour

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Abstract : Cocoyam is herbaceous perennial plant which belongs to the family Araceae and genus xanthosoma or cococasia is mostly cultivated as food crop. It is very rich in Vitamin B6, Magnesium and also in dietary fiber. Matured cocoyam is eaten boiled, Fried or roasted in Nigeria. It can also be dried and used to make flour. Food drying is a method of food preservation in which food is dried, thus inhibit the growth of bacteria yeast and mold through the removal of water. Drying effect on the proximate composition and functional properties of cocoyam flour were investigated. Freshly harvested cocoyam cultivars at matured level were washed with portable water, peeled, sliced into 0.3mm thickness blanch in boiling water at 100°C for 15 minutes and dried using sun drying oven and cabinet dryers. The blanched slices were divided into three lots and were subjected to different drying methods. The dried cocoyam slices were milled into flour using Apex mill and packed into Low Density Polyethylene Film (LDPE) 75 Micron 4 thickness and kept for four months under ambient temperature before analysis. The results showed that the moisture content, ash, crude fiber, fat, protein and carbohydrate ranged from 7.35% to 13.89%, 1.45% to 3.3%, 1.2% to 3.41%, 2.1% to 3.1%, 6.30% to 9.1% and 66% to 82% respectively. The functional properties of the cocoyam flour ranged from 1. 65ml/g to 4.24ml/g water absorption capacity, 0.85ml/g to 2.11ml/g oil absorption capacity 0.56ml/g and 0.78ml/g bulk density and 4.91% to 6.80% swelling capacity. The result showed that there was not significant difference ($P \geq 0.5$) across the various drying methods used. Cabinet drying method was found to have the best quality characteristic values than the other drying methods. In conclusion, drying of cocoyam could be used for value addition and provide extension to shelf-life.

Keywords : cocoyam flour, drying, cabinet dryer, oven dryer
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