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The effect of drying methods and varieties on carotenoid retention and functional properties of trifoliate yam (*Dioscorea dumetorum*) flour

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The effect of drying methods and varieties on the carotenoid retention, anti-nutritional factors and functional properties of trifoliate yam (*Dioscorea dumetorum*) flour were investigated. Flour was produced from yellow and white varieties of trifoliate yam using sun drying, solar drying, oven drying (40°C), cabinet drying (40°C). The pH, bulk density, dispersibility, water absorption index, oil absorption capacity, emulsion capacity ranged from 5.77 to 6.65; 0.66 to 0.76 g/ml; 16.67 to 50.33%, 135.47 to 189.87%; 118.33 to 136.67%, and 43.00 to 50.67%, respectively. The effect of variety and drying method on the functional properties were significantly different ($p<0.05$) except water binding capacity and foaming capacity. There were also significant differences in the effect of drying method and variety on the particle size distribution ($p<0.05$) on the flours. The anti-nutritional factors showed that, different drying method reduced anti-nutrient compared to the raw tuber with values ranging from 5.83 to 13.15% for alkaloid and 0.01 to 0.38% for tannin. There were significant difference on the drying method and variety. The carotenoid content and retention was significantly affected by the drying method and variety with values ranging from 0.94 to 33.48 µg/g and 0.05% to 0.34%, respectively. Cabinet dried flour samples retained the highest amount of carotenoids while sun dried flours recorded the highest losses. The study showed that variety and drying had significant effect on the carotenoid retention, functional properties and anti-nutritional factors.

Biography

Adegunwa M O is working as a Lecturer at Federal University of Agriculture, Abeokuta, Nigeria. She has extended her valuable service for many years and has been a recipient of many award and grants. Her international experience includes various programs, contributions and participation in different countries for diverse fields of study. Her research interests reflect in her wide range of publications in various national and international journals.

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