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Quality of ‘gari’ as Affected by Age at Harvest, Cropping System and Variety of Cassava Roots

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Abstract

Cassava is a foremost crop of food security in Nigeria since it is a source of many indigenous food products that are commonly eaten by the populace. Many resource-restricted farmers engage in its production, adopting diverse agronomic practices that could affect the quality of products derivable from cassava. ‘Gari’ is the most commonly traded and consumed cassava product. This study investigated the effect of age at harvest (AH), cropping system (CS) and variety on the quality attributes of ‘gari’. Five cassava varieties (white- and yellow-fleshed) planted under two different CS (sole and intercropped) and harvested at different AH (12, 15, and 18 mo after planting) were converted into ‘gari’. ‘Eba’, a popular traditional food derived from ‘gari’ was prepared. Quality of ‘gari’ such as proximate and mineral composition, total carotenoids, pH, total titratable acidity, bulk density, water absorption index, dispersibility, swelling power, solubility index, and pasting properties, as well as the sensory properties of both ‘gari’ and ‘eba’ were determined. Data obtained were analysed using a generalised linear model. The chemical composition, functional and sensory properties of ‘gari’ were significantly ($p < 0.05$) affected by AH, CP and variety. The moisture, ash, crude fibre, protein, fat and carbohydrate contents of ‘gari’ ranged from 3.70 to 11.60 %, 0.50 to 2.03 %, 1.44 to 2.40 %, 0.23 to 1.87 %, 0.20 to 1.32 %, and 83.12 to 90.65 %, respectively. The water absorption index, bulk density, dispersibility, swelling power and solubility index of ‘gari’ varied from 270.80 to 527.60 %, 0.41 to 0.77 g ml⁻¹, 1.50 to 45.50, 6.36 to 11.01, and 3.5 to 25.0 %, respectively. The moisture and carbohydrate contents and dispersibility of ‘gari’ decreased with increase in AH. The bulk density was highest at 15 mo AH. Preference for the colour and aroma of ‘gari’ increased with increase in AH. The overall acceptability of ‘eba’ increased with increase in AH. It is therefore desirable to harvest cassava for ‘gari’ and ‘eba’ preparation at 18 mo.

Keywords: Cassava, chemical composition, cropping system, functional properties, gari, variety