



Influence of harvest time and cultivar type on the β -carotene content and quality of biofortified cassava in Ghana

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Abstract

Vitamin A deficiency (VAD), the leading cause of preventable blindness, ranks second to anaemia in terms of global prevalence. Strategies developed to combat VAD include supplementation, food-to-food fortification and biofortification. However, biofortification is highly promising, as it uses staple crops of target populations to enhance intake of this micronutrient. Cassava is a major staple for millions of people worldwide and ranks second to maize as a major source of calories in Ghana and other West African countries. This research seeks to determine the influence of harvest time on the β -carotene content and flour quality four biofortified cassava cultivars (Adom Bankye, Taah bankye, Hewali Duade and Atseke Gbeli) released by the University of Cape Coast, Ghana, through mutagenesis of the IITA yellow cultivar. The five cassava cultivars were planted under standard agronomic practices and harvested after 8, 10, 12 and 14 months. Quality analysis of flours prepared from the cassava including pH, soluble sugars, colour, functional properties, amylose/amylopectin starch fractions and the levels of β -carotene was carried out. The pH of the flours remained fairly ranged 6.78 – 7.42, and was almost changed irrespective of cultivar or harvest time. The β -carotene peaked at the 10th month of harvest for all cultivars, with Taah Bankye having the highest value among the new cultivars. The yellowness index of the cultivars followed a similar trend to the β -carotene content, establish the fact that the colour of the cassava is mainly influenced by this micronutrient. The functional properties of the flours also varied with cultivar and harvest time, with the highest water absorption and swelling power observed for Hewali Duade and Taah Bankye after 14 and 10 months of harvest time, respectively.

Keywords: *Biofortification; Cassava; β -Carotene; Harvest Time; Flour Quality*

