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Evaluation of Kenyan Orange Fleshed Sweet Potato (*Ipomoea batatas* Lam.) Purees for Functional Food Production

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Abstract: Consumption of functional foods with health promoting benefits and/or disease prevention has been on the increase globally. The study aimed at evaluating the potential of utilizing Kenyan orange fleshed sweet potato (*Ipomoea batatas* Lam.) for functional food production with aesthetics benefits. Purees from three different varieties of orange fleshed sweet potato (OFSP) were analyzed for nutritional, physicochemical and microbial quality. The findings of the study show that the three purees were all microbiologically safe and of near neutral pH, but differed significantly ($P < 0.05$) in nutrient content (dry matter content, 12.76-28.23%; crude fiber, 1.37-2.90% fresh weight basis (FWB); β-carotene, 0.94-9.27 mg/100g dry weight basis (DWB); starch, 10.20-18.30% FWB & total sugar 27.08-31.76% DWB). The purees had attractive appearance (ranging from yellow to dark orange), with varying significantly different spectrophotometer hunters color scale ($P < 0.05$), and flow ability. Conclusions from the findings show great potential of utilizing the varying properties of OFSP puree to produce enriched functional food products such as probiotic/prebiotic dairy, beverages, bakery and baby foods.

Key words: Orange fleshed sweet potato puree, functional foods, sustainable nutrition.

1. Introduction

In the recent years, production of functional foods with health promoting benefits and/or prophylactic properties over and above usual nutritional value has been on the increase globally. Studies show that consumers are more aware of the relationship between diet and health/life style diseases [1, 2]. The escalating health-care costs and false/misleading "Health claims" on food products have created a need to explore scientifically researched beneficial food nutrients/attributes [3]. These functional food products should be affordable, convenient, market driven and safe. Functional food ingredients of greatest interest include phytochemicals, dietary fiber, probiotics (live microorganisms with health benefit on the host) [4], prebiotics (non-digestible food ingredient that selectively stimulating the growth and/or activity of one or a limited number of bacteria in the colon) [5] and synbiotics (mixture of probiotics and prebiotics) [6].

Root tubers of orange fleshed sweet potato (*Ipomoea batatas* Lam.) have been used as ingredient in home based food products such as porridge, mandazi/doughnut, chapatti, crackies, crisps and buns [7-10]. Although often people lump sweet potato, yams, cassava, arrow roots and common potato into one category called "potatoes", orange fleshed sweet potato (OFSP) is very different from other root tubers in terms of flavor, color, texture and nutritional composition [11]. These tropical tubers are readily available in Kenya due to convenience for home use, high yields and drought resistance but unfortunately highly perishable. Studies of raw OFSP elsewhere

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