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EFFECT OF SOIL NUTRIENT MANAGEMENT AND COOKING METHODS ON NUTRIENT AND PHYTOCHEMICAL COMPOSITION OF *IPOMEABATATAS* (UMUSPO 3 VARIETY)

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ABSTRACT

Findings from the investigations on the effects of different soil nutrient managements and cooking methods on nutrient and phytochemical composition of orange-fleshed sweet potato (Umudike Sweet Potato Variety 3) (UMUSPO 3 Ipomea batatas) are reported in this article. UMUSPO 3 potato vines (main plot) were planted on eight sub- plots treated with different soil nutrients (Poultry manure, agrolyser and NPK) combinations (VB1 – VB8) and a control (VB9) at the National Root Crops Research Institute experimental farm, Umudike, Abia State, Nigeria. Potato tubers were harvested after 4 months of planting and both cooked and raw samples were subjected to chemical and sensory analysis. Carbohydrate and dry matter contents were highest and respectively 16.4% and 29.79% in potatoes harvested from the control soil (VB9). Both control and treated soils yielded potatoes that were high in calcium (86.94 – 96.47 mg/100g), magnesium (73.62 - 86.87 mg/100g), phosphorus (151.26 - 195.97 mg/100g), potassium (790.30 – 901.54 mg/100g) and sodium (74.50 – 81.84 mg/100g). Only soil treatments with NPK 15:15:15 at 400 kg/ha (VB5) improved protein contents of raw potatoes from 5.26% to 6.13% while other soil treatments decreased the protein content. Potato harvested from the control and various soil treatments (VB1 –VB8) were rich in vitamin C (53.34 – 95.37 mg/100 g) and carotene (28.52 – 29.73 mg/100 g) but relatively low in the B vitamins. Soil treatments VB1 to VB8 did not improve vitamin contents of potatoes beyond that of the control for vitamin B1. Cooking methods and cooking time affected carotenoid retention in UMUSPO 3 potato. Carotenoid retention was higher in oven-dried samples than in roasted and boiled samples. Oven-drying for 24h decreased total carotenoid retention to 76.4%, and for 48h to 36.3%. Boiling for 10 min decreased carotenoid content to 56.4%, and for 30 min to 17.1%. Roasting for 10 min reduced it to 50.6%, and for 30 min to 30.9%.