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Effect of the Nutritional Value of 'Bophelo' sweet potato (*Ipomoea batatas* L.) Cultivar Under Various Processing Techniques

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Abstract

Sweet potato (*Ipomoea batatas* L.) is a nutrient-dense root crop that is rich with health beneficial compounds. However, consumption was observed to decline mainly as a result of the limited post-harvest processing methods. Boiling method is commonly used, however, leaching of the essential nutrients into the boiling water affects its nutritional value. Based on this, the responses of the nutritional value of the orange fleshed 'Bophelo' sweet potato cultivar under three different processing techniques was investigated. A 2 × 3 factorial experiment, arranged in a completely randomized design was conducted. Factors A comprised 2 preparations (unpeeled and peeled) methods and factor B comprised 3 processing (boiling, deep-frying and roasting) methods, which served as treatments, in triplicates. The unprocessed, raw peeled and unpeeled samples represented the control. Data on vitamin C, beta carotene, total phenolic, starch and protein were determined and recorded. In the peeled form, roasted samples had the highest nutritional accumulation (vitamin C 21.03 mg/100 mL, beta carotene 64.6 µg/100g, starch 5.86 g/mL and protein 0.3 mg/L), whereas in the unpeeled form, higher total phenolic (80.7 mg/GAE/g) was retained. Deep-frying method favoured vitamin C (10.00 mg/ 100 mL) and starch (13.6 g/mL) in peeled form, but in the unpeeled form, beta carotene (32.0 µg/100g), total phenolic (66.2 mg/ GAE/g) and protein (1.5 mg/L) was retained. Boiling method retained low levels of vitamin C (3.35 mg/100mL), beta carotene (54.8 µg/100g), total phenolic (43.5 mg/ GAE/g) and protein (1.3 mg/L) in peeled forms, whereas starch (8.59 g/mL was retained in the unpeeled samples. In conclusion, roasting method demonstrated high retention of the tested nutritional value in 'Bophelo' sweet potato samples.