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**Effect of Pretreatments and Drying on Nutrient Content of Orange Fleshed Sweet Potato Tubers and Cowpea Leaves Used in Maswa District, Tanzania**

**ABSTRACT**

Rural communities in Tanzania are increasingly suffering from food shortage and malnutrition (Vitamin A deficiency, Protein energy malnutrition and Iron deficiency Anemia). A household baseline survey was conducted in Maswa district to document the production, processing and storage of orange fleshed sweet potato tubers and cowpea leaves. Standard chemical analyses were conducted on four sweet potato varieties (*Jewel, Karoti dar, Kabode and Ejumula*) each of which possesses different intensities of orange-flesh color, and on cowpea leaves to establish levels of nutrients in fresh and processed products. Beta carotene levels were determined by the spectrophotometric method while mineral content was determined using Atomic Absorption Spectrophotometric methods. Both cowpea leaves and sweet potatoes were subjected to pretreatments including blanching and boiling. Survey data indicate that respondents have limited knowledge about nutritional excellence and blanching of orange fleshed sweet potato tubers and cowpea leaves. The *Michembe* dried sweet potato is preferred over its *matobolwa* counterpart. Fresh samples of sweet potatoes and cowpea leaves had significantly lower proximate composition results (protein, fat, fiber and carbohydrate) and mineral content compared to dried samples because foods lose a significant amount of moisture during drying which results in the concentration of other nutrients. Moisture content of fresh cowpea leaves was 89.54g/100g and dried cowpea leaves were below 11% moisture. Solar dried samples indicated higher fat content compared to sun dried samples. Fiber and protein content of blanched samples were significantly higher than cooked samples. Ash content of cooked samples was significantly higher than the blanched samples, regardless of the drying method used. There was a three-fold reduction in  $\beta$ -carotene content when fresh samples were dried. Boiling has a different effect on sweet potatoes compared to cowpea leaves. It resulted in a greater retention of  $\beta$ -carotene in sweet potatoes than in those which were blanched. On the other hand, the opposite occurred for cowpea leaves. Results further showed that fresh dried sweet potatoes and cowpea leaves had significantly lower  $\beta$ -carotene content and lower retention during storage compared to boiled and blanched chips. Blanched cowpea leaves retained more beta carotene after six months storage at room temperature. A recommendation from this study is that blanching as part of the processing of green vegetables and orange fleshed sweet potato tubers should be taught to rural inhabitants in order to protect nutrients loss. Education on processing and nutritional excellence of orange fleshed sweet potato tubers and cowpea leaves should also be provided in order to reduce malnutrition in Maswa district and Tanzania in general.