

## ABSTRACT

Pumpkin is a multi-purpose fruit and leafy vegetable with abundant nutritional value and economic potential as a food and industrial crop. *Cucurbita moschata* is the most common, heat-tolerant, better thrives in tropical Africa, but remains under-utilised. Food preservation prolongs consumption period, diet variety and income generation for manufacturing companies. However, preservation is a central problem facing developing countries, with huge post-harvest losses of perishable commodities. Food availability that decreases just a few months after harvest limits development of high-value agri-business industries specializing in highly perishable products. Although processing and preservation treatments lead to high convenience, the subsequent nutritional loss remains a challenge. There is need to find ways of minimizing nutritional losses. Subsequently, the present study grew and subjected mature pumpkin fruits to three open solar (OSD), oven electric (OED) and enhanced solar (ESD) drying methods in an incomplete randomized block design. Dry fruit slices were milled and analysed for  $\beta$ -carotene, protein, zinc, iron, calcium, energy, and moisture contents. There was a significant ( $P < 0.05$ ). Oven dried flour had 74.84  $\mu\text{g/g}$ , while fresh fruit had 16.6  $\mu\text{g/g}$   $\beta$ -carotene. Protein ranged from 13.8% to 16.5% in dry flours compared to 2.6% in fresh fruit. Zinc, iron, calcium and energy decreased in dry flours compared to fresh fruit, and ranged from: 9 to 44 ppm zinc, 49.5 to 94.5 ppm iron, 525 to 1,116.82 ppm calcium, and 3.6 to 4.2 kcal/g energy. Drying generally increases certain nutrients in reduced bulk as it did  $\beta$ -carotene and protein, but also reduces others as it did zinc, iron, calcium and energy through oxidation. There is need to invest in ESD as an effective method of pumpkin fruit and nutrient integrity preservation, as well as post-harvest loss prevention.