Effect of steaming, steam-drying and frying on the provitamin A and ascorbic acid contents of squash (Cucurbita spp.)

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Abstract
Vitamin A deficiency still remains a nutritional concern in Cameroon. Squashes pulp is rich in provitamin A and could help to reduce this deficiency. Unfortunately, in Cameroon, squash pulp is more often reserved for the nutrition of sick people and domestic animals. This may be because the pulp is only eaten steamed or cooked with a little bit of water. To encourage the consumption of squash pulp to contribute to vitamin A needs and prolong storage, new forms of consumption were experienced. The contents of α-carotene, all-trans-β-carotene and ascorbic acid were determined respectively by HPLC and titration with 2,6 dichlorophenol-indophenol in 5 landraces of raw, steamed, steam-dried and fried squash pulp from Cameroon. Moisture and total lipid contents were also determined. Peeled pulp squash of 5 cm slice was steamed at 90 °C for 30 min or at 85 °C for 30 min, sliced again at 5 mm thickness and dried at 80 °C during 4 h to obtained steamed or steam-dried squashes. To have fried squashes, 40 g of 1 mm thickness slices pulp were fried in boiling refined palm oil (free of carotenoids) bath at 150 °C during 7 and 10 min. The results obtained showed that steam-drying and frying of squashes led to water losses (89%-95%). As a consequence of this, the α-carotene, all-trans-β-carotene and ascorbic acid contents (expressed in g /100 g fresh portion) of steam-dried and fried squashes were significantly higher ($P < 0.05$) than those of steamed and raw pulp. However, the retention rate of provitamin A and ascorbic acid was more elevated in steamed than in steam-dried and fried squashes. These results suggest that steam-dried and fried squashes could contribute to fight against vitamin A deficiency while increasing availability of squashes.

Key words: Squashes, steaming, steam-drying, frying, provitamin A, ascorbic acid

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