

Analysis of beta carotene content in a value-added pumpkin (*Cucurbita spp.*) and curry leaves (*Murraya koenigii*) instant soup mixture

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Pumpkin (*Cucurbita maxima*) is a widely cultivated vegetable in Sri Lanka and is recognized for its high β -carotene content and nutritional value. To reduce post-harvest losses, a dehydrated instant soup mix (ISM) based on *C. maxima* was developed. The β -carotene content of three sample types, an aged soup formulation, a freshly prepared soup formulation, and *C. maxima* flour produced by dehydration, was analyzed. The β -carotene determination was performed using an Agilent High-Performance Liquid Chromatography (HPLC) system equipped with a reverse-phase column and a UV-visible photodiode array detector. The mobile phase consisted of acetonitrile, methanol, and ethyl acetate supplemented with 0.05% triethylamine. Identification of β -carotene was achieved by comparing retention times and absorption maxima (λ_{max}). The results indicated that pumpkin flour exhibited the highest β -carotene concentration (5.37 ± 0.25 ppm), demonstrating its potential as a rich source of provitamin A. In comparison, the fresh ISM Sample

B contained 3.89 ± 0.26 ppm of β -carotene. After one year of storage, the β -carotene content of ISM Sample B decreased to 3.55 ± 0.28 ppm. This represents a reduction of approximately 8.7%, suggesting that β -carotene is susceptible to degradation over time. The observed decline may be attributed to environmental factors such as light exposure, oxygen, and temperature fluctuations during storage. This study suggests that the product retains a substantial proportion of its nutritional value even after extended storage.

Keywords:

Beta carotene; Soup formula; *Cucurbita maxima*.

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