

Abstract

Vitamin A deficiency is one of the major health problems prevailing in Sri Lanka. Consequently the under utilization of these potential vegetables may result in their long-term extinction from the biodiversity on one hand and in worsening the nutritional status of the local communities on the other hand.

A survey was conducted to assess the popularity of under utilizable leafy vegetables in a selected area (Piliyandala MOH area). This study, as a model, can be carried out in other areas. Forty-five individuals selected randomly were interviewed under the above. According to the statistical analysis, availability and the medicinal value, **Pitasudu sarana** (*Boerhavia diffusa*) leaves were selected for further studies.

Isolation, identification and quantification of carotenoids was carried out according to Rodriguez-Amaya (1999), which involved separation of carotenoids by open column chromatography (OCC), identification of carotenoids by using ultra violet visible absorption spectra (λ_{max} and spectral fine structure), order of elution of OCC and chemical tests.

According to the results obtained, high pro-vitamin A activities of β -carotene ($34.0 \pm 3.6 \mu\text{g/g}$ (FW)), and β -carotene 5, 6, 5', 6', diepoxide ($12.1 \pm 1.9 \mu\text{g/g}$ (FW)) which is essential in reducing the risk of cancer and macular degeneration were found in *Boerhavia diffusa*. The leaves also contain β -cryptoxanthin ($41.6 \pm 2.4 \mu\text{g/g}$ (FW)), Neoxanthin ($19.5 \pm 8.0 \mu\text{g/g}$ (FW)), Lutein-5, 6-epoxide ($40.1 \pm 2.8 \mu\text{g/g}$ (FW)), α -cryptoxanthin ($35.7 \pm 1.4 \mu\text{g/g}$ (FW)).

As far as the other nutrients and dietary constituents of these leaves are concerned, these leaves contain 1.60 g/100g of total dietary fibre, 1.7g/100g of protein, 2.96 g/100g of Ash, 24.39mg/100g of vitamin C and is 88.6% of moisture content.

The present study had a focus to develop a blast frozen product from *Boerhavia diffusa* with the purpose of extending the shelf life. Accordingly, steam blanched blast frozen products were superior over the other counterparts subjected to hot water blanching and blast freezing, steam blanching and slow freezing, hot water blanching and slow freezing and the control in terms of retention of nutrients, microbiological quality, reduced drip loss and sensory qualities. Anthocyanin formation and simultaneous chlorophyll degradation taken place during blanching can be prevented by treating the leaves with citric acid (0.0625M) and NaCl (1g /100 ml) dissolved in the water bath.