601/E_2

Identification and quantification of carotenoids of Wel kohila leaves (*Syngonium angustatum*)

P W N M Colombagama[1], U G Chandrika[2*], K K D S Ranaweera[3]
[1] *Department of Food Science and Technology[1], Sabaragamuwa University of Sri Lanka, Buttala*
[2] *Department of Biochemistry, University of Sri Jayewardenepura, Gangodawila, Nugegoda*
[3] *Department of Food Science and Technology, University of Sri Jayewardenepura, Gangodawila, Nugegoda*

Vitamin A deficiency is one of the major health problems prevailing in Sri Lanka. Although, it has been reported that consumption of green leafy vegetables rich in pro-vitamin A can adequately contribute to its Recommended Daily Allowance (RDA), people have neglected to consume most of the potentially wholesome leafy vegetables due to many reasons. The underutilisation 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 utilisable leafy vegetables in a selected area (Piliyandala MOH area) and this study, as a model, can be carried out in other areas. Forty five individuals selected randomly were interviewed. According to the statistical analysis, 95.5% of the families interviewed were found to consume immature Manioc (Manihot esculenta Crantz) leaves and 93% consume Kurignan (*Gymnema lactiferum*) leaves and 89% consumed Wel kohila (*Syngonium angustatum*) leaves. Recent studies show that manioc leaves sufficiently contribute to the RDA. This work is a part of the main project focused on preparing a database on the carotenoid composition of commonly consumed Sri Lankan green leafy vegetables. Therefore, the objective of the present study is to identify and quantify carotenoids of selected under usable leafy vegetable, Wel kohila (*Syngonium angustatum*) by the above preliminary survey.

Isolation, identification and quantification of carotenoids were carried out according to Rodriguez-Amaya (1999), which involved extraction of carotenoids, partitioning them to petroleum ether, 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 (25.6 ± 4.5 μg/g (FW)), and Lutein (4.1 ± 0.8 μg/g (FW)), which is essential in reducing risk of cancer and macular degeneration were found in Wel kohila leaves. It was revealed that α-carotene (5.6 ± 4.2 μg/g (FW)) is also found in Wel kohila leaves, even though the presence of α-carotene among leafy vegetables has not been reported. Further studies should be carried out to find out percentage of contribution to RDA.

Acknowledgement: Supported by the International Foundation for Science, Stockholm, Sweden and Organisation for the Prohibition of Chemical Weapons (OPCW), The Hague, Netherlands, through a grant to Dr. Udumalagala Gamage Chandrika. (Research Grant No: E/3655-1).

* chandri@sjp.ac.lk Tel: 011-2803578