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MANUFACTURE OF VITAMIN -A RICH PRODUCTS BY USING CARROT (*Daucus carota*)

by

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DECLARATION

The work described in this thesis was carried out by me under the supervision of Dr.K.K.D.S Ranaweera , Head/Department of Food Science and Technology and Co-ordinator/Food Science and Technology Programme, University of Sri Jayawardenepura, Nugegoda, Sri Lanka and Mr. J. Wansapala, Lecturer, Department of Food Science and Technology, University of Sri Jayawardenepura, Nugegoda, Sri Lanka and a report on this has not been submitted in whole or in part to any University or any other institution for another Degree/ diploma.

.....23/11/2006

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ABSTRACT

Carrot is a popular vegetable eaten all over the world raw as well as a cooked vegetable. It is cultivated for its nutritious root. Fresh raw dark coloured carrot is the cheapest source of vitamin-A. The beta-carotene pigments in carrot tubers are the source of vitamin-A.

A recent national survey conducted by the Medical Research Institute of Sri Lanka revealed that 36% of pre school children in Sri Lanka have vitamin-A deficiency.

In developing countries such as Sri Lanka, where the diet contains little vitamin-A, individuals must consume foods containing beta-carotene to obtain sufficient amounts to avoid illnesses caused by vitamin –A deficiency.

This research project was carried out to incorporate vitamin-A in to various preparations to increase the uptake of vitamin-A.

The RTS carrot drink is not only a thirst quenching drink, but also a rich source of Vitamin-A with 2.0mg /100g of beta-carotene.

Dehydrated carrot dices with 14.4mg/100g of beta-carotene can be included in noodles packets and in instant soup mixtures.

Blast frozen carrot dices with 2.7mg/100g pf beta-carotene are mainly utilized in soups and vegetable salads.

Beta-carotene rich capsules made from carrot powder can do a supplementation.

The beta-carotene content of the prepared samples was determined to find out the contribution of one portion of carrot sample (100g) to the recommended daily allowance of retinal for children and adolescents.

The present study clearly indicated that carrot is a rich source of vitamin-A.

Chapter 1

1. Introduction

Vitamin –A deficiency is a major public health nutritional problem in developing countries and is a cause of preventable blindness with an estimated 20000-100000 young children going blind every year (Tee 1992). The main source of preformed vitamin A is animal food, which far beyond the reach of most people in the third world who therefore depend on those carotenoids present in plant foods that may be converted to vitamin A in the body (pro vitamin A carotenoids). In addition to this traditional role, carotenoids with or without vitamin A activity are now known to be involved in immune-enhancement (Bendich 1991) , treatment and prevention of cancer (Matthews Roth 1991) and reduction of morbidity and mortality in children of the third world (Tee 1992).

Carrot is a good source of beta-carotene and is consumed, as a vegetable in Sri Lanka, therefore, is potentially a good source of beta-carotene that may enhance life and productivity.

Objectives of the study:

1.Development of a variety of food products from carrot to increase the uptake of vitamin-A; RTS carrot drink, dehydrated carrot dices, blast frozen carrot dices and beta-carotene capsules made from carrot powder.

2. Analysis of prepared samples for aesthetical properties, nutritional value(vitamin-A) and for microbiological safety.