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Cantaloupe melon as a solution for vitamin A deficiency

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Vitamin A deficiency is one of the major health problems prevailing in Sri Lanka, which especially affects preschool children. Cantaloupe melon (*Cucumis melo* reticulates) is becoming a popular fruit eaten either raw when ripen or as a dessert with sugar or ginger preserves. Although it is considered to be rich in carotenoids, no attempts have been made to study cantaloupe melon with regard to carotenoid content or their bioavailability. Therefore, a study was carried out to quantify β-carotene in cantaloupe melon available in the local market and to measure the *in vitro* accessibility of β-carotene using an *in vitro* method. Well matured and ripen cantaloupe melon fruits were purchased from the local market for the study. Fruits were selected basing on their rind color and the fruit shape. Carotenoids from cantaloupe melon were extracted according to the method of Rodriguez Amaya (1999), which involved extraction of carotenoids, partition to petroleum ether, separation of carotenoids by Open Column Chromatography (OCC), identification of carotenoids using Ultra Violet Visible absorption spectra (maximum absorption and spectral fine structure), order of elution in OCC and chemical tests. Purity of the identified carotenoids was further confirmed by using the HPLC with photo diode array detection. Mobile phase consisted of acetonitrile, methanol and ethyl acetate containing 0.05% of TEA (Trimethylamine) and the gradient used was 95:5:0 to 60:20:20 in 20 minutes and this proportion was maintained during the entire run at a flow rate of 0.5ml/min. As for the *in vitro* accessibility, the fruit pulp was homogenized into small pieces, sizes of which were similar to those of contents in the bolos after chewing and was subjected to an *in vitro* digestion procedure according to Chandrika *et al.* (2006). Cantaloupe melon had β-carotene 26 ± 8 µg /g FW (on fresh weight basis) as the major carotenoid and small amounts of lutein and lycopene containing 0.4 ± 0.1 and 0.2 ± 0.1 µg/g FW respectively. However, cantaloupe melon was found to contain more β-carotene than any other known β-carotene rich fruits so far studied by our group. The *in vitro* bioaccessibility of cantaloupe melon was found to be very high (71±11%). Hence, it can be considered that cantaloupe melon is a good source of β-carotene with a higher bioavailability and that 100g of cantaloupe melon contributes to the Recommended Daily Allowance (240% with regard to RDA) of Vitamin A significantly.

Acknowledgement: International Foundation for Science and Organisation for the Prohibition of Chemical Weapons (OPCW) (Research grant No: E/3655-1), National Research Council (Grant No. 05-36) and University of Sri Jayewardenepura (Research grant No: ASP/PR/2006-04)

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