

**A reinvestigation of the profile, content, retinol equivalent and studies of  
*in-vitro* bioaccessibility of carotenoids of *Carica papaya***

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The yellow-fleshed papaw (*Carica papaya*), is widely recognised as a good source of pro-vitamin A carotenoid. This study was designed to determine the carotenoid profile and the content of yellow-fleshed papaw collected at random from different areas of Kurunegala, which is a major papaw producing District in Sri Lanka. Carotenoids were separated by open column chromatography (OCC). Identification was carried out by UV spectrophotometrically, order of elution in OCC and by the following chemical tests: fuming HCl test on the thin layer chromatography (tlc), test for epoxides with 0.1N HCl and for *cis-trans* configuration by iodine catalysis. The extracts were analysed by high performance liquid chromatography (HPLC). Results showed that the carotenoids present were: phytofluene (ranged from 135 to 241  $\mu\text{g}\cdot 100\text{g}^{-1}$  fresh weight (FW)),  $\zeta$ -carotene (ranged from 29 to 238  $\mu\text{g}\cdot 100\text{g}^{-1}$  FW),  $\beta$ -carotene (ranged from 140 to 1030  $\mu\text{g}\cdot 100\text{g}^{-1}$  FW),  $\beta$ -cryptoxanthin (ranged from 230 to 1510  $\mu\text{g}\cdot 100\text{g}^{-1}$  FW),  $\beta$ -cryptoxanthin 5,6-epoxide (ranged from 20 to 190  $\mu\text{g}\cdot 100\text{g}^{-1}$  FW) and an unknown mono epoxy-carotenoid (ranged from 62 to 223  $\mu\text{g}\cdot 100\text{g}^{-1}$  FW). Retinol equivalent (RE) was also varied markedly from 344.8 – 2410  $\mu\text{g}\cdot 100\text{g}^{-1}$  dry weight. This is 2 to 16 fold, values reported for papaw previously. *In-vitro* bio-accessibility studies showed values  $5.2\pm 0.9 \mu\text{g}\cdot \text{g}^{-1}$  FW for  $\beta$ -carotene and  $6.9\pm 1.1 \mu\text{g}\cdot \text{g}^{-1}$  FW for  $\beta$ -cryptoxanthin. This is 50.5% and 45.7% the fraction of total available  $\beta$ -carotene and  $\beta$ -cryptoxanthin, respectively.

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