Stability of carotenoids from hexane fractions of 12 Malaysian underutilised tropical fruits during low temperature storage

ABSTRACT

A study on the stability of carotenoids in fruit extract is necessary due to rapid degradation of carotenoid compounds in the extract. Twelve selected underutilised tropical fruits were studied for their total carotene content (TCC) from hexane fractions under storage for 5 h at 0°C and 12 days at −20°C. Kinetic study revealed that the degradation rate of TCC was highly depended on the storage time. Storage for 12 days at −20°C had TCC degraded for more than 30% in hexane fractions of Bacang 1 (Mangifera foetida), Bacang 3 (M. foetida), Kuini (M. odorata) and Tampoi Putih (Baccaurea macrocarpa). Less than 5% of TCC was lost in hexane fractions of Cerapu 1 (Garcinia prainiana) and Cerapu 2 (G. prainiana). Most of the fruit's hexane fractions demonstrated a moderate loss of TCC if stored at –20°C for about 2 weeks. A major loss of TCC was found in low antioxidant fruits. However, storage for 5 h at 0°C had TCC degraded for less than 15% in hexane fractions of Cerapu 2, Durian Nyekak 2 (Durio kutejensis) and Jentik-jentik (Baccaurea polyneura). In this study, a rapid degradation of carotenoids occurred if the fruit's hexane fractions were stored at 0°C than at −20°C. Various factors may contribute to the degradation of carotenoid compounds in the fruits' hexane fractions.

Keyword: Hexane fraction; Stability; Storage; Total carotene content; Underutilised fruit.