Effect of fractional crystallization on composition and thermal characteristics of avocado (Persea americana) butter

ABSTRACT

Fractionation of plant butters like avocado (Persea americana) may yield useful fat derivatives with distinct physical and functional properties. In this study, avocado butter was sequentially crystallized in acetone at 5 °C (2 h), 0 °C (24 h), and ī 20 °C (24 h) until the mother-liquor becomes devoid of any crystal formation. The high-melting stearin isolated at 5 °C and low-melting olein isolated at ī 20 °C were compared with the original sample in terms of fatty acid and triacylglycerol (TAG) compositions and thermal profiles. With respect to the original sample, low-melting olein is possessed with higher proportions of diunsaturated and triunsaturated TAG while high-melting stearin is found to become enriched with disaturated and trisaturated TAG molecules. These differences in compositions make the basic physico-chemical parameters as well as the thermal profiles of high-melting stearin and low-melting olein to be distinctly different from those of the original sample.

Keyword: Avocado butter; Fractional crystallization; Differential scanning calorimetry (DSC)