

Physico-chemical characteristics of papaya (*Carica papaya* L.) seed oil of the Hong Kong/Sekaki variety

ABSTRACT

A study was carried out to determine the physicochemical characteristics of the oil derived from papaya seeds of the Hong Kong/Sekaki variety. Proximate analysis showed that seeds of the Hong Kong/Sekaki variety contained considerable amount of oil (27.0%). The iodine value, saponification value, unsaponifiable matter and free fatty acid contents of freshly extracted papaya seed oil were 76.9 g I₂/100g oil, 193.5 mg KOH/g oil, 1.52% and 0.91%, respectively. The oil had a Lovibond color index of 15.2Y + 5.2B. Papaya seed oil contained ten detectable fatty acids, of which 78.33% were unsaturated. Oleic (73.5%) acid was the dominant fatty acids followed by palmitic acid (15.8%). Based on the high performance liquid chromatography (HPLC) analysis, seven species of triacylglycerols (TAGs) were detected. The predominant TAGs of papaya seed oil were OOO (40.4%), POO (29.1%) and SOO (9.9%) where O, P, and S denote oleic, palmitic and stearic acids, respectively. Thermal analysis by differential scanning calorimetry (DSC) showed that papaya seed oil had its major melting and crystallization transitions at 12.4°C and -48.2°C, respectively. Analysis of the sample by Z-nose (electronic nose) instrument showed that the sample had a high level of volatile compounds.

Keyword: *Carica papaya* L.; Proximate analysis; Fatty acids; Triacylglycerols; Melting and cooling points; Volatile compounds