

Comparison of subcritical CO₂ and ultrasound-assisted aqueous methods with the conventional solvent method in the extraction of avocado oil

ABSTRACT

Avocado (*Persiana americana* Mill) belongs to the Lauraceae family. High level of lipids in the avocado pulp can be served as an important raw material for edible oil extraction. In the present study, the physicochemical properties of avocado oil extracted using subcritical CO₂ extraction (SCO₂) and ultrasound-assisted aqueous extraction (UAAE) were compared with the conventional solvent extraction. In comparison to solvent extraction, the oils extracted using SCO₂ and UAAE were found to have higher iodine values, but lower slip melting points, free fatty acid contents and saponification values. Regardless of the extraction methods, the major fatty acids in avocado oils were oleic (40.73-42.72%) and palmitic (28.12-34.48%) acids whereas the major triacylglycerols in avocado oils were palmitoyl-dioleoyl-glycerol (POO; 22.48-23.01%) and palmitoyl-oleoyl-linoleoyl-glycerol (POL; 17.64-18.23%). SCO₂ and UAAE are effective “solvent-free” methods to extract avocado oils and potentially other edible oils.

Keyword: Avocado oil; Subcritical CO₂ extraction; Ultrasound-assisted aqueous extraction; Physicochemical properties