

Edible Oil Extracted from Anchovies Using Supercritical CO₂: Availability of Fat-Soluble Vitamins and Comparison with Commercial Oils

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In this study, oil was extracted from anchovies using supercritical carbon dioxide (SC-CO₂). Additionally, a comparative experiment was conducted with organic solvent-extracted anchovy oil and commercial fish oil. Omega-3 fatty acid contents were found to be 32.10±0.45 to 32.15±0.38% for anchovy fish oil. The results of the acid value and the peroxide value, determinants of oil stability, were 11.06±0.01 mg KOH/g, and 28.92±0.19 meq/kg, respectively, using SC-CO₂ for extraction. In the case of fat-soluble vitamins of anchovy oil extracted by SC-CO₂, vitamins A, D, and E and coenzyme Q10 were found at high percentages 22.51±0.28 µg/100 g, 4.32±0.10 mg/100 g, 104.67±4.75 mg/100 g and 2.04±0.20 mg/100 g, respectively, which had a higher content of these vitamins compared with that of the hexane extraction. Therefore, SC-CO₂ extracted anchovy oil is expected to be used as a functional material, which could lead to economic benefits through the high valorization of anchovies.