

Supercritical Carbon Dioxide Extraction of Oil from Mackerel Viscera And Digestive Enzyme Activities Characterization

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The extraction of oil from mackerel viscera using supercritical carbon dioxide (SCO₂) was performed under the conditions of temperature range from 35 to 45°C, and constant pressure, 25 MPa. About 25 min of extraction time can be regarded to extract oil adequately. The oil extraction yield was highest at 45°C. The digestive enzyme activities of protease, lipase and amylase of SCO₂ treated mackerel viscera residues were also investigated. The results showed that the activities of enzymes, protease, lipase, and α-amylase of SCO₂ treated mackerel viscera were slightly decreased comparing to raw mackerel viscera. The extracted oil of mackerel viscera was fractionized by GC for fatty acids components. In all extraction conditions, the amount of palmitic acid and DHA, EPA, stearic acid was high. The highest amount of palmitic acid (43.3%), DHA (20.2%), EPA (8.8%) and stearic acid (10.9%) was found in mackerel viscera oil extracted at 25 MPa/45°C, respectively.