

Off-flavors removal from marine fish oil using a continuous countercurrent process with supercritical carbon dioxide

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The study was performed for quality improvement of marine fish oil by removing off-flavors and decolorization using a continuous countercurrent process with supercritical carbon dioxide (SCO₂) and adsorption material. The experiment was carried out in a continuous countercurrent column at different temperatures (30– 55°C), pressures (8–10 MPa) and 25g adsorption column to optimize the off-flavors removal from fish oil. The height and internal diameter of countercurrent column were 920 and 21 mm, 200 and 10 mm, respectively. The column were packed with ceramic roll (10 mm height and 6 mm i.d.) and activated carbon. The CO₂ flow rate measured by a dry gas meter was 22.6 g/min. The volatile organic compounds (VOCs) of original and SCO₂ treated fish oil were analyzed by GC-MS. The highest off-flavors and decolorization were removed by continuous countercurrent process with SCO₂ and activated carbon from marine fish oil at temperature of 30°C and pressure of 8 MPa. The quality of marine fish oil obtained after continuous countercurrent process with SCO₂ and adsorption material were improved by reducing the off-flavors and decolorization of fish oil.