

2nd International Conference and Expo on Pharmaceutics & Novel Drug Delivery Systems

March 20-21, 2023 | Webinar

Prasanna et al., J Pharm Drug Deliv Res 2023, Volume 12

Extraction Yield and Fatty Acid Profile of Small Marine Fish Oil

Prasanna^{1*} and Vishal Kumar Barla²

St.Pauls College of Pharmacy, Osmania University

The extraction of oil from raw material of different origins by applying green technologies is a topical concern. Solvent extraction, hydraulic pressing or heat based procedures should be replaced by clean technologies, such as enzymatic hydrolysis, microwave or ultrasonic assisted extractions, or supercritical fluid extraction using CO₂. The aim of laboratory study was to test and evaluate three alternatives procedures for extracting oil from small marine fish raw material, versus a classical Soxhlet extraction, as a control method. The homogenized sample was extracted in three replicates and the applied procedures were: repeated washing with water of raw material and oil separation by centrifugation (RMW-C), oil separation by centrifugation (RMC), centrifugation followed by repeated water washing of the separated oil, until neutral pH is reached (RMS-W). In order to evaluate the oil quality, the chromatographic profile of fatty acids was analyzed. Considering Soxhlet extraction as reference, by which it yields 62,9% oil, all tested procedures have a lower extraction efficiency, the most valuable being RMC with an yield of 72% oil from reference value. For all tested procedures, the chromatographic analysis showed similar composition in fatty acids profiles, the values for polyunsaturated fatty acids being approximately 7% higher for solvent-free extractions, compared to Soxhlet method. The sum of eicosapentaenoic (EPA) and docosapentaenoic (DHA) acids has overall average values of 30% that fall within the official quality indicators of fish oils, used in nutraceutical application. Preliminary results show that solvent-free extraction should be considered as a valuable option for fish oil extraction.

Keywords: Soxhlet extraction, hydraulic pressing, supercritical fluid extraction, centrifugation.

Biography

Prasanna has completed her Bachelor degree at the age of 21 years at MNR University. She was a Volunteer in at two national Pharmaceutical Conferences and published 1 paper in reputed journals. She has done a project on Docking in 2020.

Received: March 5, 2023; **Accepted:** March 7, 2023; **Published:** March 22, 2023
