

# Valorization of mullet roe by-products for the production of PUFA rich oils

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## Abstract

Striped mullet (*Mugil cephalus*) roe is used for the production of traditional delicacies in Greece (avgotaracho), Japan (karasumi) and Italy (botargo). In Greece avgotaracho is a Protected Designation of Origin product and its special taste combined with its high nutritional value of this rich in polyunsaturated fatty acids (PUFA) and bioactive compounds delicacy attracts many consumers. During the production of avgotaracho and the similar products some of the egg sacs (skeins) either break or have an inappropriate size (too small) and they can not be used for avgotaracho production. On the other hand the nutritional quality of the eggs in the broken or smaller skein is by no means inferior comparing to the rest. Proper valorization of the mullet roe by-products could lead to high nutrition value products. This work focuses on examining the potential valorization of these high nutritional value by-products for producing mullet roe oil. Three different extraction methods with potential of scale-up are examined. Namely pressure, supercritical extraction, solvent extraction are examined where mild temperature conditions and (wherever applicable) food-grade solvents are used. The oil yield, the composition of oils in fatty acids by GC-FID, the level of oil oxidation (peroxide value, p-anisidine value, K232 K268, TOTOX) and antioxidant activity (DPPH, ABTS) are determined. The potential of the above extraction methods for the production of mullet roe oil in terms of yield and oil quality is discussed.

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