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(n-3) HUFA COMPOSITION OF FRESHLY SPAWNED EGGS FROM EUROPEAN SEABASS (*DICENTRARCHUS LABRAX*), SEABREAM (*SPARUS AURATA*) AND RED SEABREAM (*PAGRUS MAJOR*) COLLECTED IN DIFFERENT HATCHERIES

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Abstract

The biochemical composition of fish eggs is often used as an indicator for assessing the nutritional requirements of aquaculture species during their larval stages. Fatty acids of the (n-3) HUFA type have proven to play a critical role in providing good growth, survival and stress resistance in marine fish larvae. Hence, analyzing these fatty acids in fish eggs may provide interesting data on the requirements for those essential nutrients. By comparing the analyses of wild *versus* broodstock fish eggs differences may appear, possibly explaining differences in egg quality. Intra-spawning-season differences may further appear by following fatty acid profiles in the course of time. Finally, the influence of broodstock nutritionon egg composition may be another variable to consider in the evaluation of the above.

In this study freshly released eggs of European seabass (*D. labrax*), seabream (*S. aurata*), and red seabream (*P. major*) were collected from broodstock fish held under different conditions in various hatcheries. Temporal variations in fatty acid profiles were monitored by following a seabream broodstock during 1 month. The effect of feeding broodstock with fish-oil coated pellets on the fatty acid profiles of the eggs produced, was established for seabream.

The results indicate that for the three species the content of 22:6n-3 is considerably higher than 20:5n-3. Total (n-3) HUFA on a dry weight basis appears highest in seabass while on a relative basis (% of total fatty acids) the highest levels are found in seabream eggs and the lowest in red seabream. Differences between seabass eggs from females caught in the wild and naturally spawned broodstock fish kept in captivity, occur particularly in the lower content (half) of 22:6n-3 in the wild eggs.

Differences within the same species cultured at different locations and hence under different conditions are insignificant. The variability is in the range of 2.9 to 9.3% for the relative values and 8.6 to 18.9% for the absolute figures. The effect of changing the fat

composition of the broodstock diet was noticed within a 1 day period in the eggs produced by that fish . The increase in 20:5n-3, originating from the cod liver oil used for coating the broodstock pellets, disappeared within the second day after feeding the enriched pellets. This confirms fast metabolism and transport of lipid nutrients from the broodstock fish to the eggs.