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EFFECT OF DIFFERENT DOCOSAHEXAENOIC AND EICOSAPENTAENOIC ACID RATIOS IN MICRODIETS ON GROWTH OF GILTHEAD SEA BREAM LARVAE (*Sparus aurata* L.)

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In previous studies the importance of dietary n-3 HUFA for marine larval growth has been largely demonstrated. Although both docosahexaenoic (DHA) and eicosapentaenoic (EPA) acids have been shown to be essential for the normal development of marine fish larvae several authors have pointed out the negative effects of an unbalanced DHA/EPA ratio. To determine the effect of DHA/EPA variation under different n-3 HUFA dietary levels, in the present work, ten diets containing different DHA/EPA ratios and n-3 HUFA range between 1.0 and 3.7% d.w. were tested along four experiences.

Fifteen-day-old *Sparus aurata* larvae were fed with microdiets during two weeks. Growth was obtained by measure of larval total length and dry body weight. Larval lipids were extracted, fatty acid composition of total neutral and total polar lipid fraction determined by gas chrromatography. Larval phosphatidylcholine (PC), phosphatidylethanolamine (PE), and phosphatidylinositol (PI) were subjected to phospholipase A_2 to determine the positional distribution of component fatty acids.

Results showed that total content of n-3 HUFA the diets was the main variable explaining the larval growth, despite the DHA/EPA ratio, when working with dietary levels of n-3 HUFA $\leq$ 2.0% d.w. However, when n-3 HUFA dietary value was between 2.2 and 3.7% d.w. growth rate was significantly improved ($p < 0.05$) by increasing the DHA/EPA ratio in diet of 0.6 to 1.0 and to 1.7. Dietary DHA/EPA ratios of 3.7 with 3.5% d.w. of total n-3 HUFA content produced the best larval growth. Higher dietary n-3 HUFA levels showed the best survival rates ($p < 0.05$). Positive correlations ($p < 0.05$) between dietary DHA and DHA accumulation in larval PC were found. Moreover, an increase in the DHA amount in larval total polar lipid fraction, particularly in the PC sn-2 position, was associated with better growth rates.