

**Supplemental iron and phosphorus increase dietary inclusion
of cottonseed and soybean meal in Olive Flounder,
*Paralichthys olivaceus***

Se-Jin Lim, Kyeong-Jun Lee*

*Faculty of Applied Marine Science, Cheju National University, Jeju 690-756
Korea*

A long-term feeding experiment was conducted to investigate the use of cottonseed and soybean meal supplemented with iron and phosphorus in diets for olive flounder. Olive flounder at initial average size of 28.7 ± 0.3 g (mean \pm S.D) were divided into 15 groups (three tanks per dietary treatment) and fed one of the five experimental diets for 26 weeks. Fish were fed 49% crude protein diets in which each of five isonitrogenous diets was formulated to contain different levels of cottonseed/soybean meal (CS) to replace fish meal (FM) with supplementation of iron and phosphorus. The five experimental diets were as follows : Diet 1 (control), 0%CS; diet2, 20%CS; diet3, 30%CS; diet4, 30%CS+Fe&P; and diet5, 40%CS+Fe&P. After 26 weeks of feeding trial, no significant differences were observed in final weight gain, growth rate, feed intake and survival among all the treatments. Hemoglobin, ALT (alanine aminotransferase) and AST (aspartate aminotransferase) were also not significantly different among all the fish groups. However hematocrit of fish fed diet 5 was significantly lower than that of fish fed the other diet. Based on the tendency in growth performances, 30% of FM protein replacement by CS with supplementation of iron and phosphorus might be a safe level for commercial use. The findings in this study suggest that dietary supplementation of iron and phosphorus could increase the inclusion of cottonseed and soybean meal for fish meal replacement in diets for marine fish species.

*Corresponding author: kjlee@cheju.ac.kr