F-27

Utilization of protein source from soy in marine aquaculture feed.

Toshiro Masumoto, Faculty of Agriculture, Kochi University, Kochi, Japan

Many aquaculture species in seawater are a carnivore and require a high protein diet. Fishmeal (FM) has been an ideal protein source for such fish species of diets but a low supply of FM needs less dependent on FM in the diet. Among the alternative ingredients to FM, soybean meal (SBM) is a reasonable one in terms of market availability and nutritional quality. The FM content in a diet for yellowtail, which is one of the major aquaculture marine fish in Japan, could reduce from 60% to 35% by using SBM and corn gluten meal with EAAs and taurine supplement. Further increase of SBM in the diet, however, is facing to two challenges. The first is palatability. Feed intake of *yellowtail* fed a no-fishmeal soy protein concentrate (SPC) based diet with synthetic feeding stimulants was only 56% of that of FM fed fish. One of the effective solutions to the problem is a supplementation of soybean lecithin (SBL). The supplementation of SBL at 2% in the diet significantly improved the feed intake of fish to the 82% of that of FM fed fish. The second is a reduction of growth. Fish fed a high inclusion of SBM diet reduced growth and a lower digestibility compared to fish fed FM diet. The low digestibility would be due to lower secretion of pancreatic enzymes and bile juice judging from the measurements of activities and contents in the intestinal contents. And further study revealed that the responsible components of such defects in SBM diet fed fish were in the alcohol soluble fraction in SBM. A reduction of the components in an economic manner would improve growth performance of fish and expand usage of soy in marine aquaculture.