

**Dietary soybean meal utilization with phytase supplementation for hybrid F1,
red sea bream (♀) × black sea bream (♂)**

Abstract

The efficacy of replacing dietary fish meal with soybean meal for juvenile F1, red sea bream, *Pagrus major* female × black sea bream, *Acanthopagrus schlegeli* male, was assayed by growth and digestive performances. The F1 in triplicate tanks were fed each of following four diets: 46% fish meal (F), 30% fish meal + 20% soybean meal (S_{20}), 15% fish meal + 40% soybean meal (S_{40}) and S_{40} + 2500 phytase units (PU) /kg diet ($S_{40}P$) for 12 weeks. In F1, the diets S_{20} and $S_{40}P$ showed similar growth performance to that of F and S_{40} , but S_{40} had significantly lower specific growth rate, feed conversion efficiency and energy efficiency as compared with F diet. The diet S_{40} also led lower nutrient and phosphorus retentions than other diets, while the dietary treatments did not alter carcass and liver proximate compositions. Moreover, diet $S_{40}P$ produced higher apparent nutrient and phosphorus digestibility than diet S_{40} , resulting in lower phosphorus discharge into surrounding water mass. These results reveal that a suitable replacement level of dietary fish meal with soybean meal is recommended about 67% with the co-supplementation of phytase at/under 2500 PU/kg diet under the experimental conditions used here.