The Effect of a Probiotic: Leuconostoc mesenteroides B4, and Its Products on Growth Performance and Disease Resistance of Orange-Spotted Grouper Epinephelus coioides

Authors: Mei-Ying Huang, Huei-Jen Ju, Liang-Wei Tseng, Chin-Jung Hsu

Abstract : The aim of this study was to investigate a probiotic, Leuconostoc mesenteroides B4, and its products, isomaltooligosaccharide and dextran, on growth performance, digestive enzymes, immune responses, and pathogen resistance of spotted grouper Epinephelus coioides. The grouper were fed control and diets supplemented with L. mesenteroides B4 (107 CFU/g), isomaltooligosaccharide (0.15%) + L. mesenteroides B4 (107 CFU/g) (I + B4), and dextran (0.15%) + L. mesenteroides B4 (107 CFU/g) (D + B4) for 8 weeks. The result showed that final weights and percent weight gains of the grouper fed diets supplemented with L. mesenteroides B4 and I + B4 were significantly higher than that of the control group (p < 0.05). The activities of digestive enzymes in the grouper fed with I + B4 were significantly higher than the control group (p < 0.05), too. After challenge with Vibrio harveyi, the enzyme activities of antiprotease and lysozyme as well as of respiratory burst of the fish fed with I + B4 and D + B4 were significantly higher than that of the control group (p < 0.05). The grouper fed with the both diets also had higher survival rates than that of the control group after the challenge. Overall, the study indicated that feeding diets supplemented with L. mesenteroides B4, and its products, isomaltooligosaccharide, and dextran could be an effective method for enhancing the growth performance and disease resistance in orange-spotted grouper.

Keywords: orange-spotted grouper, probiotic Leuconostoc mesenteroides B4, isomaltooligosaccharide, dextran, growth

performance, pathogen resistance

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