Effects of Fructo- and Mannan Oligosaccharide Supplements on Growth Performance, Survival Rate, Body Biochemical Composition and Resistance Rate of Roach (Rutilus rutilus) Fry

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Abstract

In this study, single or combined effect of fructo- and mannan oligosaccharide supplements on growth performance, survival, body composition and resistance rate in juvenile Roach (Rutilus rutilus caspicus) were investigated for 10 weeks. Commercial roach diet (containing 38.45 percent protein and 9.87 percent lipid) were supplemented with 0 (control), 5 g kg⁻¹ Fos, 5 g kg⁻¹ MOS and 2.5 g kg⁻¹ Fos + 2.5 g kg⁻¹ MOS. Juvenile roach, initially weighing an average of 1.45 ± 0.11 g, were distributed at a stocking density of 50 fish per tank and fed up a day. There were no significant differences in growth and feeding parameters between fish fed control and MOS and FOS supplementation diets (P>0.05). The highest and the lowest growth performance were observed in 5 g kg⁻¹ FOS and combined treatment, respectively. There were no significant differences in survival rate among experimental groups (P>0.05). There were significant difference in crude lipid carcass between control and 5 g kg⁻¹ MOS group (P<0.05), while no significant difference was observed in protein carcass between treatment (P>0.05). At the end of experiment, there were no significant difference in survival index to thermal (40°C), salinity (14.7 ppt), and acidity (pH=2) stress. In the test of alkalinity stress, minimum of survival time was obtained in control group (P<0.05). The result indicated that including the price index, 5 g kg⁻¹ MOS could improve growth performance and survival in some of the stress tests juvenile roach.

Keywords: Fructo oligosaccharide, Mannan oligosaccharide, Growth, Survival, Salinity stress, Rutilus rutilus caspicus.