Effects of Fructo- and Mannan Oligosaccharide Supplements on Growth Performance, Survival Rate, Body Biochemichal 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.*