Effects of Different Storage Temperatures on Microflora of Rainbow Trout Feed Supplemented with Kefir

Kubilay A¹, Z. Guzel-Seydim², E. Gumus³, T. Kok-Tas², S. Metin¹, S. Guney¹, G. Ulukoy⁴ and O. Diler¹

¹ Faculty of Fisheries, Suleyman Demirel University, 32500 Egirdir, Isparta, Turkey
² Department of Food Engineering, Suleyman Demirel University, Çunur 32260 Isparta, Turkey
³ Department of Aquaculture, Faculty of Fisheries, Akdeniz University, 07058 Antalya, Turkey
⁴ Faculty of Fisheries, Mugla Sıtkı Koçman University, 48000 Mugla, Turkey

Abstract

The aim of the study was to determine the effects of different storage temperatures on microflora of rainbow trout feed supplemented with kefir produced using natural kefir grains. The commercial basal diet was provided to contain about 50% crude protein, 17% crude lipids and 4500 kcal/kg energy. Of the basal diet, four different diets added 0% (control), 2%, 5% and 10% kefir were prepared, and then stored in air-tight plastic bags at -20 °C, +4 °C and +24 °C for 28 days. Lactobacillus, Lactococcus, L. acidophilus, Bifidobacterium spp. and yeast contents of diets stored at different temperatures were determined at days 1st, 7th, 14th, 21st, and 28th. At 4°C for 28 day-storage, our results showed that the diets contain 2% kefir had 6.13 log cfu/g, 6.08 log cfu/g, 6.00 log cfu/g, 2.65 log cfu/g, and 3.23 log cfu/g for Lactobacillus, Lactococcus, L. acidophilus, Bifidobacterium spp. and yeast, respectively. The diet supplemented with 5 % kefir contained 6.71 log cfu/g, 6.62 log cfu/g, 6.62 log cfu/g, 3.84 log cfu/g and 4.02 log cfu/g for Lactobacillus, Lactococcus, L. acidophilus, Bifidobacterium spp. and yeast, respectively. Finally, the diet contain 10% kefir had 6.67 log cfu/g, 6.69 log
cfu/g, 6.71 log cfu/g, 3.92 log cfu/g, and 4.16 log cfu/g for Lactobacillus, Lactococcus, L. acidophilus, Bifidobacterium spp. and yeast, respectively. However, it was noted that control diet did not carry any of these bacteria and yeast. According to findings, it was concluded that the diet contain 5% kefir was obtained high content of microorganisms which were able to survive at 4°C for 28 day-storage.

**Key words:** Rainbow trout, feed, kefir, probiotics, storage