

Abstract

The aim of this study was to investigate the effects of DL- α -tocopherol acetate through diet and direct addition after slaughtering on feeding, growth and also oxidative stability of rainbow trout fillets during 12 days refrigerated storage. For this, 360 fish (95 ± 5 g) were obtained and divided into three treatment groups (within three replications) and were fed for 8 weeks with 0 (E0), 300 (E300) and 500 (E500) mg α -TA/kg feed. During study, every two weeks and the end of trial, fish were prepared for biometry and measuring the growth and nutritional parameters. At the end of trial, the fish were killed by ice-shocking. Samples were washed with tap water, descaled and filleted. The fish fillets fed commercial diet (control group) were divided into two groups. The first group defined as control group, that it is not superficially treated by spraying with α -TA solution. Another group at this time treated with α -tocopherol solution (α -tocopherol - ethanol 70% - distilled water) at concentration 200 mg α -tocopherol/kg flesh. All samples were stored in a refrigerator at 4 °C for 12 days, and chemical analysis (pH, PV, TBA, FFA, body and fatty acids composition) was carried out during refrigerated storage. Based on obtained results, a significantly better growth and nutritional variables were observed in E300 and E500 groups compared with E0 group, but no difference was observed between treatment E300 and E500. Statistical analysis did not bring any significant difference between the body and fatty acids compositions of the muscle of fish fed experimental diets. Results also showed the good correlation ($r^2=0.99$) between α -TA levels in diets and fillets. Successful inhibition of lipid oxidation was observed with dietary (300 and 500 mg α -TA/kg feed) and surface application of α -TA in comparison with control group during refrigerated storage ($P<0.05$). But the dietary α -tocopherol was also effective on surface application group ($P<0.05$). Fish fed diet containing 500 mg α -TA per kg feed have a higher benefit effect on improved shelf life of fish fillets. During storage period, the pH and FFA values of trial treatments was not affected by the dietary and postmortem addition of α -tocopherol.

Key words: Lipid Oxidation, α -Tocopherol, Rainbow Trout, Shelf-Life.



University of Zabol
Graduate School
Faculty of Natural Resources
Department of Fisheries

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**Survey on the effects of adding α -tocopherol
acetate in diet and direct usage to fillet on shelf life
of rainbow trout (*Oncorhynchus mykiss*) during
storage at 4 °C**

Supervisors:

Dr. E. Zakipour Rahimabadi
Dr. A. Ehsani

Advisors:

Dr. M. Rahnama
A. Arshadi

By:

M.S. Jasour

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