

## **Abstract**

In this study the effect of different slaughter methods were examined on the quality of rainbow trout during storage in the refrigerator, to determine the best way to maintain the quality of fish in the interval of time of 12 days, on days 0, 3, 6, 9 and 12. Treatments were included choked (suffocated) the fish out of water (control), blows to the head with a mallet, cut the base of gill and abdominal drain and the use of water and ice and then hit in the head with a mallet. Chemical (pH, TVB-N, FFA, PV and TBA) and microbiological factors (TVC and Mesophilic bacteria) and also observing the blood spot in the tissues during the period were evaluated. Protein, moisture, ash and fat were measured for all treatments during the period. Over the time, pH, PV, TBA, FFA and TVB-N in all treatments were significantly altered. pH in the control treatments, head injury, amputation the gill and using the water and ice increased from 6.50 to 7.50, from 6.50 to 7.40, from 6.40 to 7.30 and 6.20 to 7.20, respectively. Rates of PV in control treatment, head, cut the base of gill and using of water and ice were increased from the 0.96 to 11.03, 0.92 to 10.60, 0.86 to 10.20 and 0.88 the 10.40 mg/kg lipid peroxide Meq, respectively. TBA values in control treatment, head injury, cut the base of gill and using of water and ice were changed from 0.20 to 2.76, 0.10 to 2.73, 0.20 to 2.10 and 0.20 to 2.40 mg per mg malone aldehyde of meat, respectively and the amount of TVB-N in abovementioned treatments changed from 16.80 to 38.10 from 18.20 to 28.50 and 16.80 to 31.80 mg of nitrogen per meat, respectively. FFA levels changed from 0.31 to 3.70, 0.23 to 3.07, 0.20 to 2.91 and 0.20 to 3.06 g oleic acid per gram of fat, respectively. Changes in the number of mesophilic bacteria and TVC were significant during storage period. The gill base amputation treatment showed best results regarding to the amount of mesophilic bacteria and TVC which were 7.02 and 7.04 log cfu at ninth day. About the existence of patches during the maintenance of blood, the lowest and smallest of blood stains was related to gill base treatment amputation. In general, the gill based amputation treatment had best impact on the quality of rainbow trout during storage period.

**Keywords:** Rainbow trout, Killing methods, Quality



University of Zabol  
Graduate school  
Faculty of Natural Resources  
Department of Fisheries  
**The Thesis Submitted for the Degree of M. Sc**  
**(in the field of Fishery)**

# **Effect of slaughter methods on quality of rainbow trout during storage at 4 °C**

**Supervisor:**  
Dr. E. Zaki pour Rahimabadi

**Advisor:**  
Dr. A. Motalebi

**By:**  
M. Kamali

October 2012