

## Abstract

Nowadays, using appropriate packaging techniques to improve quality, increase shelf life and prevent economic losses are taken into account. The aim of this work was to determine microbiological, Physicochemical and sensory changes of rainbow trout (*Oncorhynchus mykiss*) fillets processed by sous vide cooking method during chilled storage at  $4\pm 8^{\circ}\text{C}$ . For this purpose, a total of 90 rainbow trout (250-300 g) purchased. The fish were cleaned, filleted and divided into 100g batches and into sterile packages underwent the sous vide process, was vacuum packed using a vacuum sealing machine. For preparing cooked treatments, first group, vacuum-packed fillets cooked in a water bath: after reaching a core temperature of  $65^{\circ}\text{C}$ , cooking was prolonged for 15 min (LTLT treatment or low and prolonged cooking) and second group cooked in same way at  $85^{\circ}\text{C}$  for 5 min (HTST treatment or high and fast cooking). Control treatment maintained in refrigerator ( $1\pm 4^{\circ}\text{C}$ ) for 21 days. Chemical analysis (pH, moisture, total lipid, total protein and ash), factors of fat Corruption measurement (PV, TBA and FFA), the changes of free fatty acids (FFA), microbial (TVC, PTC, EBC and LAB) were determined. Also, sensory evaluations (texture, color, taste and smell) were assessed in 0, 3, 7, 14 and 21 days. The results showed that the quantity of chemical indices (pH, PV, TBA AND FFA) increased during storage period but at the end of the storage period, these amounts for  $85^{\circ}\text{C}$  treatment were 5 minutes less than the other treatments. Based on chemical indices of quality control, length of storage period obtained about 14 days. At fatty acids experiments, omega-3 family that are necessary to maintaining healthy, at  $85^{\circ}\text{C}$  treatment was higher in comparison with control significantly ( $P < 0.05$ ). Results of microbial indices (TVC, PTC, EBC and LAB) showed fillets at  $85^{\circ}\text{C}$  treatment have high survival because these fillets after 21 days do not reached to MRL. Results of sensory evaluations showed positive effect on cooked treatment in comparison with control. Generally, results of chemical, microbial and sensory analysis showed that sous vide process cause increasing survival time of rainbow trout fillets maintained in a refrigerator ( $1\pm 4^{\circ}\text{C}$ ) to 14 days chemically and 21 days microbial and sensory.

**Keywords:** Sous-vide cooking, rainbow trout, maintenance in refrigerator.



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**Microbial, physico-chemical and sensory  
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