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Effect of different filling media on some physicochemical properties and sensory evaluation of canned rainbow trout (*Oncorhynchus mykiss*)

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Abstract

The aim of this study was to evaluate different filling media on some qualitative characteristics of canned rainbow trout. For this purpose, three groups of filler materials including salt water, tomato sauce and sesame oil were used to produce canned products. After three months of treatment at ambient temperature, the results showed that the highest amount of free fatty acids in the treatment of tomato sauce (0.93.0% of oleic acid) and the highest amount of thiobarbituric acid was recorded in the treatment of brine (0.131 ± 0.003 mg malondialdehyde/kg) ($P < 0.05$). Results of trout meat fatty acids profiles revealed that there was no significant difference among the amount of docosahexaenoic acid (DHA), saturated fatty acids, and monounsaturated fatty acids between the treatments of tomato sauce and brine ($P < 0.05$). However, the highest total amount of polyunsaturated fatty acids (PUFA) was observed in sesame oil treatment (2.76 ± 2.63 g/100 g oil) ($P < 0.05$). The highest level of PUFA in the filler medium was observed in the treatment of sesame oil (43.37 ± 2.89 g/100 g oil) and the highest level of DHA was observed in tomato sauce treatment (2.39 ± 0.15 g/100 g oil). The colorimetric scores also showed that the highest L* levels were related to salt water treatment and the lowest values were related to tomato sauce treatment, and also the highest values of a* (18.32 ± 0.72) and b* (35.90 ± 0.42) were observed in tomato sauce treatment ($P < 0.05$). The highest results of sensory acceptance were recorded in the canned trout filled with tomato sauce compared to other treatments. According to the results of this study, tomato sauce is recommended as the best filling medium in canned rainbow trout.

Keywords: Fatty acids, Filling media, *Oncorhynchus mykiss*, Organoleptic evaluation, Physicochemical properties

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