RESEARCH REGARDING SENSORY AND PHYSICOCHEMICAL CHANGES OF RAINBOW TROUT MEAT UNDER DIFFERENT STORAGE CONDITIONS

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Abstract

Rainbow trout (Oncorhynchus mykiss) is a highly perishable food, and its shelf life depends strongly on the preservation method. This study compared the sensory and physicochemical changes of rainbow trout stored on ice (+2…+4°C), frozen, salted in 15% brine and smoked. Quality was assessed by the Quality Index Method (QIM), pH, total volatile basic nitrogen (TVB-N), the qualitative Eber, Nessler and H_2S tests, and proximate composition. During ice storage, TVB-N increased from 12.21 to 32.43 mg/100 g over 16 days, the QIM score reached the rejection limit of 15 demerit points on day 10, and the qualitative spoilage reactions became weakly positive on day 12. In frozen storage (−18°C), TVB-N rose slowly from 13.28 to 21.56 mg/100 g up to month 10, but the sensory score exceeded the acceptability limit (18 points) between months 9 and 10, so the shelf life was limited by sensory rather than chemical changes; moisture decreased from 74.46 to 73.22 g/100 g. Brining (15% NaCl, 12 h) reduced moisture to 62.90 g/100 g (8.64 g NaCl/100 g), lowered the rate of TVB-N accumulation (0.74 versus 1.60 mg/100 g per day on ice) and delayed the first weakly positive spoilage reactions to day 20. Smoking reduced moisture to 58.74 g/100 g, increased protein (26.97 g/100 g) and fat (8.22 g/100 g) on a wet-weight basis, and delayed the first weakly positive reactions to day 28. Freezing allowed storage for about 9 months, whereas under refrigeration the first weakly positive spoilage reactions appeared on day 12 (ice), day 20 (brine) and day 28 (smoked), at similar TVB-N values (25.8–27.9 mg/100 g).

Key words: *rainbow trout, preservation, sensory analysis, QIM, TVB-N, shelf life*