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DEVELOPMENT OF QUALITY INDEX METHOD (QIM) SCHEME FOR ARCTIC CHARR (*SALVELINUS ALPINUS*) FILLETS AND APPLICATION IN SHELF LIFE STUDY SIMULATING SEA AND AIR TRANSPORT

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ABSTRACT

The overall aim was to develop a method to evaluate the freshness of Arctic charr fillets and to learn about the procedure of the development of the quality index method (QIM). Furthermore, the aim was to study the effect of simulated air and ship freight temperature on the shelf life of Arctic charr fillets. A QIM scheme for Arctic charr fillets was developed and used in a shelf life study of Arctic charr fillets stored at temperature simulating air (group AIR) and sea (group SHIP) freight export up to 15 days. The freshness and deteroriation process of the fillets was evaluated with sensory evaluation (QIM and quantitative descriptive analysis) and microbial analysis (Total viable counts (TVC) and H_2S-producing bacteria). A QIM scheme for Arctic charr fillets to evaluate freshness was proposed. The Quality Index (QI) increased linearly with storage time for both AIR and SHIP (r = 0,8781 and 0,8846 respectively). The shelf life of Arctic charr fillets was more than 15 days based on QDA and H_2S-producing bacteria counts. However, the results indicated that the fillets were close to end of shelf life, especially AIR samples which had higher bacterial counts (both TVC and H_2S-producing bacteria counts) and hints of spoilage odours and flavours. A longer shelf life may therefore be reached by storage at steady low (-1°C) temperature which is a realistic option during sea freight, as compared to storage at fluctuating temperatures which is often the case during air freight. Therefore the results show that sea freight could be a feasible option due to shelf life extension and cheaper mode of export. Further research is proposed, including longer storage time, more sampling days and retesting of a revised QIM scheme for Arctic charr fillets.