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Quality Stability of Seasoned-Dried Pacific Saury Treated with Liquid Smoke During Storage

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Introduction

Among dark fleshed fishes, especially, Pacific saury has not well been used for processing because of its properties of weak tissue and high lipid contents. As an aspect of utilization of dark fleshed fishes effectively, therefore, application of simple and modified technique such as liquid smoking method to Pacific saury could be beneficial to fishery processing field. The objective of this study is to examine storage stability of seasoned-dried product treated with liquid smoke during storage, as a series of studies on improving quality of seasoned-dried Pacific saury.

Materials and Methods

Materials : Pacific saury, *Cololabis saira,* (28±2cm length, 93±6g weight) were purchased from Myungbo Fisheries Inc. (Changwon, Korea). The liquid smoke used in this study was scansmoke PB 2110 (P. Broste A/S, Denmark, SS).

Processing of seasoned-dried Pacific saury : The processing of seasoned-dried Pacific saury with seasoning, which was composed of sugar 12.21%, salt 1.74%, MSG 1.03% and sorbitol 3.02% to Pacific saury fillet (w/w), are shown in Fig. 1. Three products completely processed were packaged with 300 g each unit in a polypropylene film (0.08 mm thickness) and stored at ambient temperature (19± 5℃) during 80 days.

Analysis of proximate composition and histamine contents: The proximate composition were determined by A.O.A.C method (1980). Histamine contents was followed by a method of KSFSN (2000).

Analysis of water activity (Aw), pH, volatile basic nitrogen (VBN), viable cell

count and color value : Aw was determined using Digital Water Activity analyzer (Novasina, CH-8808, Pfaffikon, Swiss). The pH was determined using pH meter (DP-880, DMS, Korea). The contents of VBN was determined by Conway micro-diffusion method (Ministry of Social Welfare of Japan, 1960), and viable cell count by the standard plate count method (Collins and Lyne, 1985). The color value was determined using color difference meter (Minolta, CM-3500d, Japan).

Analysis of thiobarbituric acid (TBA) and peroxide value (POV) : Oil extraction for POV (meq/kg) was followed by the method of Bligh and Dyer (1959). After that, A.O.C.S method (1990) was followed. TBA (mg/kg) was analyzed by steam distillation method (Tarladgis et al., 1960).

Sensory evaluation and statistical analysis: Sensory evaluation was performed by 9 sensory panels, and the scoring method with 9 hedonic scale was used. Statistical analysis was performed by the SPSS system.

Results and Discussion

The histamine contents (15.33~26.99 mg/100g) of 3 seasoned-dried products were much lower than tolerance limit of intake during 80 days of storage. The Aw of 3 seasoned-dried products was 0.692~0.735 range. The pH of T2 treated with liquid smoke showed relatively lower than the others during storage. In the changes of POV and TBA values of products during storage, POV of T2 was lower than that of T1 treated with antioxidant, and the TBA value of T2 was the lowest among the samples. The viable cell count of T2 was the lowest during storage. The color values of 3 seasoned-dried products were not significantly different with increasing storage period. As the results of sensory evaluation, the safety shelf-lifes of C and T1 were 30 storage days, and T2 was 45 days in aspect of quality control of products.

References

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