

## **Changes of Chemical Components during Pre-salting in the Preparation of Salted Anchovy**

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### **Introduction**

Salted anchovy, generally favored in Europe, is one of the traditional fermented fish products in southern European countries and raw anchovy are aged in 20~30% NaCl solution for 6 months (Ishida et al., 1994). They are then steeped in oil in glass jar or can, and marketed. The salt-fermented fish sauce, such as anchovy sauce and shrimp sauce are tropical fermented seafood from fish in Korea. However, salted anchovy have hardly processed in our country. This may be due to exist the difference of food culture between our country and Europe. When salted anchovy in Japan are preserved under warm condition, sometimes the fillets are solubilized (Ishida et al., 1994). These results suggested that a proteolytic enzyme may be involved. Pyeun et al. (1995) reported that endogenous protease such as cathepsin L, chymotrypsin and trypsin in the hydrolysis of raw anchovy muscle were involved. However, these results did not consider the existence of salt. Salted anchovy were manufactured by fermentation after pre-salting. Although curing conditions for low salt mackerel fillet were reported (Lee et al., 1985; Lee et al., 1998), the pre-salting condition for preparation of salted anchovy have not known well. Our objective was to establish pre-salting conditions for processing of salted anchovy with large anchovy from Kijang in Korea.

### **Materials and Methods**

#### **Materials**

Anchovy (*Engraulis japonicus*, length 12.5cm, weight 14.9g) were purchased at Kijang in Pusan metropolitan city and carried to our laboratory in ice storage. Anchovy were beheaded, gutted and salted with NaCl (various

concentration) after washed with 3% of NaCl solution. Salted anchovy were preserved for 10 days at 5°C and 20°C, respectively.

## **Methods**

Moisture and NaCl content were measured using AOAC (1995) procedure. Total nitrogen content and extractive nitrogen were determined by the micro-Kjeldahl methods (AOAC, 1995) and VBN was measured by Conway's micro diffusion method (Miwa and Iida, 1973). Amino nitrogen content was determined by Copper-salt method (Spies and Chamber, 1951). POV was measured using AOAC (1995) procedure.

## **Results**

The aim of this study was to investigate pre-salting conditions for processing of salted anchovy with large anchovy from Kijang. Anchovy were preserved for 10 days at 5°C and 20°C after addition of 8%, 15%, 25% and 35% salt, respectively. The moisture decreased with increase of salt and the salinity increased in proportion to salt concentration at 20°C. Total nitrogen decreased slightly with increase of salt added at high temperature. The contents of amino nitrogen and extractive nitrogen decreased or increased slightly in low salt (8%, 15%), while decreased in high salt (25%, 35%) and low temperature (5°C). These results imply that soluble nitrogen with moisture run out of anchovy body in high salt concentration and that the increase of amino nitrogen attributed to hydrolysis by autolysis and the hydrolysis was inhibited to high salt (over 25%) and low temperature (5°C). VBN content did not increase in 35% salt after 10 days, regardless of curing temperature. The POV were under the influence of salt concentration and were high at high temperature. We concluded that the optimal condition for preparation of salted anchovy were to work pre-salting with 35% salt at 5°C for 7 days.

## **Reference**

Isida, M., N. Shoko and N. Fumio. 1994. Thermostable proteinase in salted anchovy muscle. *J. Food Sci.*, 59(4), 781~785.