An approach to the preparation of chicken using heat and flavoring

Methods

In our experiment, chicken samples undergo the heating-flavoring preparation method. Manufactured samples are evaluated in flavor, nutrition and bacteria residual amount.

Ten chicken samples were bought from the local meat supply center. To control variables, The samples were produced at the same time, and their weight and content are checked to be the same. The flavoring AFA6645 is bought from the supermarket.

The first part of manufacturing follows the method of Piers *et.al*[1]. Drinkable water cooled to 5~10°C was added NaCl(salt) by proportion of 5%. The chicken was placed completely in the saltwater for 30 minutes to unfroze. Salt is used for accelerating the unfreezing process. To demonstrate the preparation method, we cut cubes with side length 10cm from the ten samples at the breast part as Fig.1 shows.

//pretending there is a fig.1

In the next step, we begin heating. The cubes were covered uniformly and adhesively with AFA6645 by the method proposed by Wick[2]. They were placed in room temperature(16°C) for 30 minutes to let flavoring sink in. Ten stainless steel pots from Benez® kitchenware with diameter of about 40cm and height of about 20cm are filled with pure water with depth about 1/3 the height of the pot. The pots are placed with the lid covered on Benez® gas stoves of maximum power 2500W and 5 levels. First, We turn on the stove to the maximum power, and let the water heats. When the water boils, we put the 10 cubes into the 10 pots carefully, letting the boiling water submerge all of the cubes and the flavoring. Second, We turn the fire to the lowest power(500W) for about 10 minutes and then turn off the fire to let the water cool slowly. The lid is always closed in the second process to ensure the heat doesn't lose too rapidly, so that the cubes heat gently enough. After cooling, the cubes can be taken out, ending our processing.

The last step is to test the qualities of produced chicken meat. The first index is the flavor quality. We recruited 50 volunteers in New York city to evaluate flavor in the Lindblad degree[3]. Since flavor is highly objective, the volunteers are different in gender, age and nationality. We provided portions of chicken meat fabricated in our method and the latest raw-chicken meat cooking method by Hassani *et.al*[4] to the volunteers. To ensure homogeneity in comparing, the meat material and flavoring for two methods are all the same. The second index is the nutrition. This can be measured by Standard Mott Process(SMP)[5], where we focused on the protein, carbohydrate and fat proportion especially. The third index is the bacteria residual amount(BRA). To precisely measure bacteria density, pure water is used in the chicken processing procedure, and BRA is measured both before and after heating. To compare with the traditional result, we have also measured the BRA of Hassani *et.al* 's [4] method by the method proposed by Kohn *et.al*[6].

Reference:

[1] Piers & Anderson, Journal of food industry, 125, 640(2018)

[2] Wick, Journal of food industry, 107, 23(2010)

[3] Lindblad, Food Evaluation, 13, 3(1990)

[4] Hassani, Journal of food industry, 146, 29(2023)

[5] Mott, Applied nutrition science, 193, 20(2007)

[6] Kohn, Bacteria Review, 103, 20(2019)