

Method

We chose one of the most ancient ways ever used to cook meat, to roast the chicken. It has been reported that roasted beef or pork is of nice flavor with little bacteria.^{[1][2]} Thus, our main task is to confirm the most suitable conditions (such as temperature, time, et al). Moreover, Dundee's pioneering findings would be taken into consideration^[3], so we tried applying salt or pepper (some previous studies have shown it helps to create a unique flavor^[4]) to the surface of chicken. The bacterial content was detected by culture methods, and the flavor was graded by a group of volunteers, including professional food judges and ordinary people.

As preparations, we bought 36 frozen chickens weighed (4.1 ± 0.2) kg, and randomly separated them into 9 groups, labeled 1 to 9. Each group received the following treatments: one chicken without seasoning, one with salt, one with pepper, and one with salt and pepper. Then each chicken was put into a Panasonic oven for heating, and the temperature and time are listed below.

Table 1 Table of temperature and time used to heat each group of chicken

Time/Temperature	160°C	200°C	250°C
30min	Group 1	Group 4	Group 7
45min	Group 2	Group 5	Group 8
60min	Group 3	Group 6	Group 9

Once the predetermined time was reached, we took out the chicken, put a part of it into a petri dish for bacterial testing, cut the remaining parts and randomly distributed them to the volunteers to rate the taste.

A group of British researchers has tried boiling chicken.^[5] The shortages of that experiment are that the heating temperature was fixed, and the researchers didn't use seasoning. Consequently, they concluded that boiled chicken's flavor is worse than raw chicken treated by Dundee's method. Whereas their results, we added seasoning, and made the heating temperature flexible.

Despite many improvements, our method still has many shortcomings. Heating temperature and time adjustments were very rough, and the evaluation criteria for good or bad taste might be affected by various factors. However, we are convinced that our results show a better method to cook chicken.

References

- [1] R. Max, and C. Dosh, "Bacterial Testing on Common Roasted Ingredients", *Biology*, 1986(12).
- [2] P. Wang, S. Lin, et al, "Popularity Survey of Different Kinds of Roasted Meat", *Modern Market*, 2001(3).
- [3] Dundee et al, "A New Ingredient and A Method to Cook It", *Cookery Journal*, 2008(6).
- [4] S. Smith, "The effect of Applying Pepper to the Surface of Roasted Meat", *Cookery Journal*, 2003(15).
- [5] J. Wood, H. Williams and H. Wright, "The Evaluation on the Possibility of Boiling Chicken", *Cookery Journal*, 2013(10).

