

A Study of Iodized Salt used in Preserved Szechuan Pickle

I. Foreword:

Preserved Szechuan pickle is popularly welcomed by the customers, which has been exported to Southeast Asia, U.S.A. and ect.. The traditional way of pickle production uses non-iodized salt. With the widely usage of iodized salt, some pickle production factory began to use iodized salt, while some other factories (such as factories in Zhejiang) still use non-iodized salt. They insisted that using iodized salt in preserved Szechuan pickle production would affect the product quality.

II. Testing Material and Methods:

A. Testing Material

All salt used in this study is provided by Beijing Salt Company. The production area and quality are listed in Figure 1. All vegetable used in the study are procured in Beijing vegetable market.

Figure 1.

Type of Salt	Brand of Salt	Content of Iodine mg/kg
Crude salt	Hebei crude salt	0
Refined non-iodized salt	Haiwangxing refined salt	0
Refined iodized salt	Luhua refined salt	56.08
Washed non-iodized salt	Luhua crushed and washed salt	0
Washed iodized salt	Hebei crushed and washed salt	52.16
Solar non-iodized salt	Huanghua solar salt	0
Solar iodized salt	Jianshen salt	10.47

B. Samples Preparation

Samples are prepared according to Zhejiang Yuyun Vegetable Factory's production technology. Every kind of salt prepared 2 same samples. There are altogether 14 samples.

C. Preservation Test

Preserve the samples with non-iodized salt and iodized salt at the common temperature for 3 months. During preservation, test those samples periodically in different ways, such as physics and chemistry performance test, quality estimation by sense organs and iodine content estimation.

D. Estimation by Sense Organs

Estimation by sense organs includes 2 parts. The first part is to compare the iodized salt sample and non-iodized salt sample by expanding triangle testing method, which is better than common triangle testing method, since which is easy to get the result by partiality test. The second part is to adopt the lining test of Szechuan Pickle samples with different salt inside, such as, non-iodized salt, crude salt, iodized refined salt, iodized solar salt and iodized crushed and washed salt. The tasting estimation

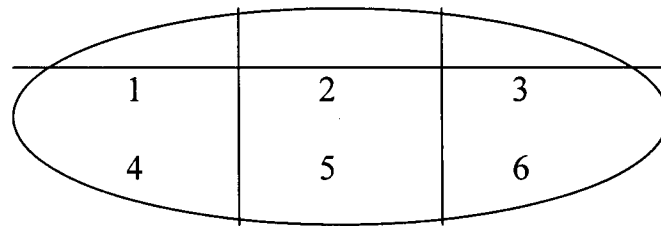
towards four samples is carried out by 10 experienced people.

E. Physics and Chemistry Performance Test

The physics and chemistry performance test included color and luster, tissue rigidity and content of iodine. After the preparation work of samples done, carry out tests every one-month of preservation, altogether 4 times.

a. ND101-DP • 101 chromaticmeter is used when testing color and luster. Choose medium size pickle heads and cut them into two parts with stainless steel knife. The cutting section needs to be neat and smooth. The cutting section is divided into 6 areas (see Figure 1) and separately estimate the data of L (Lightness), a (Red and Green) and b (Yellow and Blue).

Figure 1. Cutting Section Figure:



b. NRM—3002D testing machine is used when testing tissue rigidity. Just as doing the color and luster test, this test also do dot-check on the cutting section, which needs to be equally distributed. After analyzing the estimated data and test the prominent difference, we get the prominent level $\alpha=0.05$.

c. Measure the content of iodine

Method—catalytic colorimetric analysis (GB107860) and confirm the preserving rate of iodine in Szechuan pickle according to content of salt and iodine inside Szechuan pickle.

III. Conclusion and Discussion

This study is carried out by the single factor comparative test between iodized salt Szechuan pickle and non-iodized salt Szechuan pickle, the lining test towards Szechuan pickle of different salts and implement the mathematic and physical analysis. The result indicates:

A. There is no prominent difference in the estimation by sense organs towards quality, namely, color and luster, fragrance, taste and texture of foods.

B. In the aspect of physics and chemistry performance, the estimated data show that the color test data of different area of the same sample is different. The reason to it is: the color of raw material is not equally distributed. There is no prominent difference in the four test on the data of L, a and b.

C. Concerning the tissue rigidity, there is no prominent difference among the four tests on the rigidity mathematical and physical analysis data. Different areas of the same sample got different result on rigidity, which is the result of unequal distribution of the natural tissue of the raw material.

The insignificant difference reflects not only between the iodized salt sample and

the non-iodized salt sample but also among different pickled samples, which shows all kinds of iodized salt can be used for Szechuan pickle production and will not have a bad effect. After dealing with Szechuan pickle with iodized salt, iodine can be preserved at a certain amount inside the Szechuan pickle and the iodine preserving rate is in direct ratio with the iodine content inside iodized salt. Meanwhile, the iodine preserving rate is also affected by the pickling technology. In the process of Szechuan pickle production, the first round pickling water is not preserved. Therefore, iodine will lose in this step, which will affect the iodine preserving rate inside Szechuan pickle.