**Comparison of Between The Stability of Colour And Shelf—Life of Meat Sausage With Combined Low Sodium Nitrite And Fermented Lactic Acid.**

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Introduction

Sodium nitrite is an important curing-agent on meat and meat products, especially in meat sausage. It used to be added into meat sausage hibit growth of bacteria, improve colour of meat products and increase aroma and flavour of sausage. So it is widely used to meat process many countries throughtout the world. In recent years, a lot scientific reports said that sodium nitrite will produce some harmful subst humanbody health during meat processing in suitable conditions. Scientists and researchers in the world pay special attention to add of nitrite in the manufacture of meat products. So how to reduce addition dose of sodium nitrite in meat processing will be a valued research to all meat scientists and researchers from all over the world. In this paper, we discussed the quality change of meat sausage product and duction possibility in sodium nitrite addition by comparison of between the stability of colour and shelf-life of meat sausage with combin sodium nitrite and fermentation of lactic acid.

Materials and methods

1. Main materials:fresh park with fat (skin removed)
   start-culture, species, glacono-Delta-lactone
   suger, sodium chloride, sodium nitrite, nature casing
2. Main equipments and instruments
   cutting machine, mixing machine, vacuum filling machine, fermentation house
   ripening and cooking house, pH value measurer, water activity measurer
3. processing procedure
   selecting materials—curing—cutting—mixing—filling—fermentation—ripening and cooking—finished product
4. Sensory evaluation
   We selected randomly 30 panelists with different occupations to evaluate different meat sausage samples, then we carried out statistical sis.

Results and discussion

The processing procedure for making fermented sausage is basically the same with the processing of common meat sausage, except ferment In the other words,fermentation is a specific processing procedure in the processing of sausage. Sausage will be able to produce unique fl and aroma by fermentation. In addition, we found that fermentation processing will assist to produce of sausage colour during our experim so we discussed and compared curing effect on sausage with combined low sodium nitrite and fermentation of lactic acid. We made experi of seven batches sausage samples in our institute, in which, some conditions are fixed including curing temperature 0℃—5℃, curing ti hours and fermenting time 6 hours. On the basis of these conditions, we selected different addition dose of sodium nitrite to make meat sa They are 5, 10, 15, 20, 25, 30 and 35 ppm sodium nitrite respectively. After the processing, we measured pH value of each sausage sa

The results of experiments are shown in Table. 1 below.

Table 1. Results of sensory evaluation of sausage sample with combined low sodium nitrite and fermentation

| Sample | Sodium nitrite addition ppm | Colour | Aroma | Flavour | pH |
|---|---|---|---|---|---|
| A | 5 | light pink | OK | OK | 5.65 |
| B | 10 | light pink | good | OK | 5.51 |
| C | 15 | pink | better | good | 5.28 |
| D | 20 | pink | best | best | 5.26 |
| E | 25 | pink | best | best | 5.32 |
| F | 30 | dark pink | better | best | 5.21 |
| G | 35 | dark pink | better | better | 5.24 |

According to the results of Table 1, obviously both D and E are ideal results, but the addition of sodium nitrite of sample D is lower than sample E. Thus sample D is best result.

## Conclusion

In our experiments, we obtained a satisfying result through comparison combined low sodium nitrite and fermentation of lactic acid. We can make good quality sausage using lower concentration of sodium nitrite by fermentation. And these sausage samples with reduced levels of salt and nitrite store best under refrigeration, even without refrigeration. Samples have a stable shelf-life. Also, to reduce levels of salt and nitrite in meat processing will be benefical to humanbody health. And because of fermentation technology used, these meat sausages will be improved nutrient value. We will be discussing later in detail in this respect of nutrient improvement.

Certainly, the essential microbiological characteristic of a cured meat is that it does not putrefy. And curing may be combined with additional processing including drying, heating and smoking. Undoubtedly, more research should be done in relation to reduce or replace nitrite for meat processing in the future.

## References


H. Yingcai (1992) Study of Curing—agents In Lunch Meat Meat Research No. 4.

Z. Yuanshen (1991) Food Additives on Meat Products. Meat Industry No. 2.

J. GuoQi (1993) Meat Processing, Meat Research No. 2

BRIAN WOOD (1985) Microbiology of Fermented Foods V. 2

R. Lawrie (1974) Meat Science Second Edition

H. Kuailai (1989) Water Activity of Meat Products Meat Science No. 2