

Effects of salt and betaine on fermented meat product.

M. Sekikawa, M. Mikami and H. Miura

Obihiro University of Agriculture and Veterinary Medicine

Summary

Unpasteurized meat products are used in many countries for fermented sausages and raw hams to achieve a specific microorganisms growth in the products by natural ripening. The proper controls of the temperature and moisture is therefore needed to ensure the natural contamination and the safety of the products. There are complicated biochemical and physiological changes caused by the specific bacteria growth and various enzyme activities in meat. Applying starter culture on meat products is mainly based on two reasons: first, some starter culture inhibit the growth of other microorganisms, especially the putrefactive ones, second, they develop the favorable sensory properties of the products. Although salt is one of the most important ingredients in meat products, some bacteria growth and enzyme activity is inhibited by the high concentration of salt. In the present study, we studied the effect of salt and betaine on the growth of stater culture bacteria and on the ability of nitrate reduction.

The lag phase of Micrococcus sp. was proportional to the higher salt concentration. However, the maximum nitrate reduction ability was recorded in culture medium containing 5% salt compared with these of 0, 10, and 15 % salt. When betaine was added to the culture medium, there was no difference in the bacterial count after 48 hrs shaking incubation. The nitrate reduction ability was higher in the presence of betain than in its absence. The nitrate reduction is considered to be an important factor of meat products, especially the color development. It was suggested by the present study that the salt and betaine were important ingredients of the fermented meat products when Micrococcus var. was used as the starter culture for the development of cured meat color; nitrosomyoglobin formation.