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Effect of Mineral-Salts on Flavor Release from Food

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Summary

Flavor release from food has much influence on palatability. Released flavor from loin ham samples was measured to investigate how nitrate or nitrite influenced on the flavor profile. Loin pork meats were cured by using a solution of sodium chloride, sucrose, sodium polyphosphate and sodium nitrite (hereafter referred to as cured sample), then rolled with strings, boiled at 75ºC for 30 minutes after the center of the meat reached at 63ºC, and then cooled down. Non-cured samples were prepared as the same procedure without sodium nitrite, and control sample was just rolled, boiled and cooled down.

The concentration of sodium nitrite in the cured sample was 26.56 ppm. Thiobarbituric acid value of the non-cured sample was the highest and that of the cured sample was the lowest. This indicated that sodium nitrite played as an antioxidant compound. Released volatiles from samples were analyzed with a mouth model machine, which mimicked human mastication behavior. The total amount of released volatiles from the control sample was the highest following by the non-cured sample, and that from the cured sample was the lowest. Aldehydes predominated in the control and the non-cured samples, and particularly, hexanal occupied 64.5% and 40.9% in the control and the non-cured samples, respectively. The content of hexanal in the cured sample was only 0.5%. Aldehydes were considered to be generated compounds from lipid oxidation reaction. Then sodium nitrate was concluded as an important ingredient for anti-oxidation in cured products.