A New Way to Sugar Cure Meat with Trehalose - Smart Sugars Lesson #8

Comments by J. C. Spencer

Scientists at a Honduras University did not actually SUGAR CURE meats as we have proposed. They did, however, set out to document the impact that the sugar trehalose has on the physical and sensory properties of frozen smoked sausages. The multi-faceted effects of trehalose's preservative properties help maintain the quality of proteins and fats. Trehalose preserves the texture of foods by preventing water separation while suppressing bitterness, harsh flavors, and the odor of raw foods, meats and packaged foods.

The title of this Smart Sugars Lesson is actually the title of a proposed research project I have planned and will soon initiate. I envisioned that the sugar trehalose would improve the quality, flavor, and preservation of cured meats. Now, our data will be added to the interesting research conducted at the Honduras Zamorano University. This study reported in February 2011, confirms my summation concerning trehalose and meat. We intend to continue the study for a superior meat curing process using trehalose.

In experiments, the researchers added two levels of trehalose to the sausages: 1% and 2%. A control sample didn't contain any trehalose. The sausages were manufactured, vacuum-packed and immediately frozen after processing at -20 F for periods of 1, 14 and 28 days. After freezing, the samples were thawed at 40 F for 24 hours. Their physical and sensory properties were evaluated.

The sample treated with 1% trehalose did not differ significantly from the control. But the sample to which 2% trehalose was added fared better at maintaining its physical properties. It also was more readily accepted during sensory testing. This level of trehalose generated the highest red and yellow tones in the sample's external color. This sample experienced an increase in its mechanical cutting force and had a reduced purge, retaining its desirable characteristics for a longer period of time.

Adding trehalose to smoked sausages at 2% levels created a product with better sensory and physical characteristics after 28 days of frozen storage than sausages that didn't contain trehalose.

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