

USE OF CULTURED CANE SUGAR FOR QUALITY ENHANCEMENT IN BEEF JERKY

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I. OBJECTIVES

This study evaluates the effectiveness of Verdad® Powder N20 (cultured cane sugar [CCS]) (Corbion, Lenexa, KS) at enhancing the cook yield and moisture of beef jerky.

II. MATERIALS AND METHODS

Beef *semitendinosus* were sorted according fresh meat pH values, and a total of 25 beef *semitendinosus* were selected with pH values between 5.40 and 5.55. Selected subprimals were trimmed, sliced 0.2 in. thick, and further portioned to 1.2 cm × 1.6 cm pieces. Portioned slices were randomly assigned to treatment group of control (no yield enhancement ingredient) or 1.0% CCS. Both treatment groups were vacuum tumbled with a brine containing 1.0% salt and 100 ppm sodium nitrite, with treatment (control or 1.0% CCS) at 10% of green meat weight. Samples were dried in a smokehouse using a stage cook schedule to a target water activity of 0.88. After reaching target water activity, samples were vacuum packaged, and cook yield, pH, water activity, and moisture were reported. A trained sensory panel of 31 participants evaluated beef jerky samples from the 1.0% CCS treatment using a 7-point scale to report differences in color, aroma, sweetness, saltiness, off-flavors, and overall likeability compared to control samples. Cook yield was calculated as percent of original (raw) weight.

III. RESULTS

Panelists did not detect any differences in color, aroma, or sweetness and did not detect any off-flavors between the 2 groups. Panelists reported that beef jerky samples containing 1.0% CCS had greater salt flavor ($P < 0.05$) and subsequently reported greater overall preference for it than control ($P < 0.05$). Samples formulated with 1.0% CCS had a lower water activity than the negative control but had a higher ($P < 0.05$) moisture content and cook yield.

Table 1:

Cook yield, a_w , pH, and moisture content for different jerky treatments.

	Cook Yield	a_w	pH	Moisture
Control	29.86%	0.879	5.678	32.64%
1.0% Cultured Cane Sugar	35.36%	0.858	5.512	34.59%

IV. CONCLUSION

Verdad® Powder N20 (CCS) increases cook yield and desirability of beef jerky without negatively impacting pH, water activity, or other factors impacting shelf life. Verdad® Powder N20 provides the meat industry with clean-label yield and flavor enhancement solution.

Keywords: cook yield, jerky, quality