

## Abstract

Cereal bars are currently popular snacks made primarily of cereal, fats, and sugar as it's convenient and portable. However, high amounts of sugar are typically included in the formulations, and excessive consumption of these sugars may result in health problems. To address the issue, this sugar substitutes (polyols) such as sorbitol, isomalt, erythritol, and xylitol are used to replace sugar in the formulation. The objective of this study was to compare the effect of sucrose bar on the physical properties of cereal such as texture (hardness, springiness, crumbliness, and chewiness), moisture content, and color (based on CIELAB &  $\Delta E$  value) using appropriate instrumental analysis. The study will include sample preparation, product formulation, product analysis, and data analysis. The results will be analyzed using ANOVA or non-parametric test followed by the comparison of results to the sucrose formulation. Based on the findings, significant differences ( $p \leq 0.05$ ) were found in hardness, chewiness, moisture, and the color of the different sugar substitutes. Erythritol was found to produce the hardest and most chewable bar, while sorbitol was the softest and requires less chew. Isomalt contains the highest moisture percentage while for the color measurement, the erythritol bar was perceived to be lighter in color, while xylitol and sorbitol were perceived to be darker compared to the control. To improve the overall results for study, including storage time, other methodologies to proceed with color measurements and measuring on controlled humidity are required.

**Keywords:** *Cereal, Polyols, Texture, Color, Moisture, Sugar substitute*