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Physicochemical and Textural Properties of Low-Fat Pork Sausages with Basil Seed Gum as Affected by Different Salt Levels

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Objectives

The objective of this study was performed to develop the low-salt sausages with basil seed gum (BSG) to have a similar properties of regular-salt sausages.

Materials and Methods

Pork sausages were manufactured with 1% dried BSG at low- or regular-salt concentrations (1.0 and 1.5%). BSG powder was extracted from outer pericarp of swelled basil seed and obtained by drying at 50°C dry-oven. pH, color, expressible moisture (EM, %), cooking loss (CL,%), textural profile analyses, fourier transform infrared spectroscopy (%T), sulfhydryl group (A_{415}), and protein surface hydrophobicity (μg) were measured. The experimental design was one-way analysis of variance at the significant level of 0.05%

Results

No differences in pH, color, EM, gumminess, chewiness, cohesiveness of the low-salt sausages with or without BSG powder were observed. Although CL of

the sausage at low salt concentration (1.0%) increased, regardless of the addition of BSG, hardness values of sausages with regular-salt increased when BSG was added. However, no difference in hardness values were observed with the addition of BSG at low-salt level. The addition of BSG powder decreased the springiness, resulting in the lowest values among other sausages. The quantitative analysis of the changes in band at $1,650\text{ cm}^{-1}$, $1,624\text{ cm}^{-1}$, and $1,680\text{ cm}^{-1}$ (α -helix/unordered structures and β sheet) were decreased with increased salt concentrations. The changes of band were not much different at different salt concentrations. Increasing salt concentration showed low content of sulfhydryl groups and high protein surface hydrophobicity indicating that there were more interaction among them. However, protein surface hydrophobicity and sulfhydryl contents of sausages were increased with BSG, resulting in more hardness and less springiness than those without BSG.

Conclusion

The addition of BSG into the sausage mixture had better effect as a water-binding agent at regular-salt sausages than at low-salt sausages.