Soy Nuggets: A plant based sustainable meat substitute with the potential to alleviate Protein Energy Malnutrition

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INTRODUCTION

The consumption of animal protein has historically been linked with various health hazards, such as cardiovascular illnesses, cancer, and environmental harm. In light of the increasing global demand for protein, researchers are exploring substitutes that can mitigate these issues while ensuring sufficient nutritional intake. An example of such an alternative is a plant-based meat substitute sourced from soybeans, a legume rich in protein, amino acids, and micronutrients. In contrast to animal protein, soy nuggets are cholesterol-free and have a reduced environmental impact, making them an appealing option for health-conscious individuals and those mindful of ecological sustainability

MATERIALS and METHODS

The objective of this study was to optimize plant-based nuggets. To achieve this objective, we formulated nuggets using different concentrations of soybeans to replace 25%, 50%, 75 %, and 100% chicken. The raw material and plant-based nuggets were analyzed, including proximate, mineral, phytochemical, antioxidant, functional properties, texture, color, and sensory analysis.

RESULTS

The findings showed that the inclusion of soy paste led to a reduction in moisture, fat content, hardness, and cohesiveness while increasing the levels of carbohydrate, ash, protein, and cooking yield in soy nuggets. Significantly differences (<0.001) were observed in moisture, crude protein, fat, ash, carbohydrate, and cooking yield. The L* and b* values increased, while a* values decreased with a high concentration of incorporated soy paste. Non-significant differences were observed in the aroma aspect, while significant variations were evident in color, mouthfeel, and flavor. Adding soy meat decreased the overall acceptability and taste rating of soy nuggets, whereas appearance and texture received the highest scores.

CONCLUSION

Introducing soy meat into soy nuggets decreased production costs, making them an economically viable option. Soy nuggets treated with soy paste ranging from 25% to 50% exhibited higher levels of acceptability based on sensory assessment and economic viability, providing a secure and confident outlook on the product's sustainability.
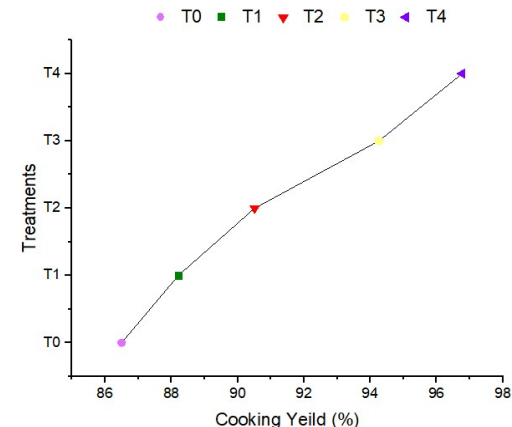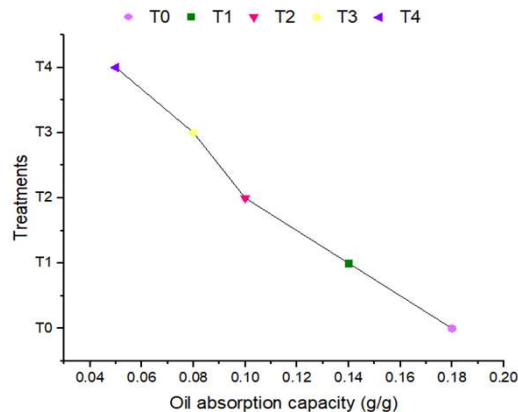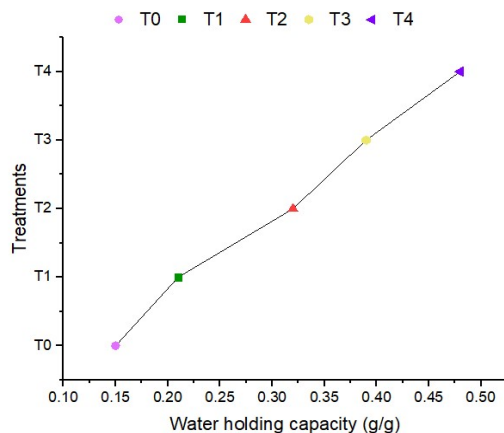
Objectives

• To develop a meat substitute/extender by utilizing soybean
• To estimate the nutritional profile and physicochemical properties of plant-based nuggets
• To evaluate consumer acceptance by sensory evaluation

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