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Development and Characterisation of a Functional Biscuit Salami Enriched with Plum Jam and Coconut

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Abstract: This study aimed to develop and characterize a functional biscuit salami enriched with plum jam and coconut, intended to improve its nutritional, sensory, and functional properties while maintaining consumer acceptability. Two formulations were evaluated: a conventional biscuit salami (control sample) and an innovative formulation enriched with plum jam and coconut. The incorporation of plum jam provides natural sugars, phenolic compounds, and antioxidants, while coconut contributes dietary fiber, minerals, and distinctive sensory attributes.

The objectives of the study were to evaluate the influence of plum jam and coconut addition on the physicochemical characteristics, nutritional composition, color properties, texture, and antioxidant potential of the final product.

Introduction

Biscuit salami is a traditional no-bake dessert appreciated for its simple preparation and characteristic flavor. The incorporation of plum jam and shredded coconut may improve its nutritional composition, flavor, texture, and color. Plum jam provides natural sugars and fruit-derived bioactive compounds, while coconut contributes dietary fiber and lipids. This study aimed to evaluate the effects of plum jam and coconut incorporation on the physicochemical, nutritional, and color properties of biscuit salami by comparing a traditional formulation with an enriched version.

Material and method

Biscuit salami samples were prepared using crushed biscuits, cocoa powder, milk, butter, sugar, and vanilla flavoring, following a traditional recipe. The enriched formulation was obtained by incorporating plum jam and shredded coconut. The ingredients were homogenized, shaped into cylindrical forms, coated with shredded coconut, and refrigerated until firm.

Moisture content and dry matter were determined using the oven-drying gravimetric method. Protein content was analyzed using the Kjeldahl method, lipids by Soxhlet extraction, and dietary fiber using the enzymatic-gravimetric method. Carbohydrate content was calculated by difference. Color parameters ($L*$, $a*$, and $b*$) were measured using a colorimeter or spectrophotometer based on the CIELAB system.

All determinations were performed in triplicate, and results were expressed as mean ± standard deviation. Statistical analysis was conducted to evaluate differences between the formulations, with significance set at $p<0.05$

Results and discussions

The incorporation of plum jam and coconut significantly improved the nutritional profile of the biscuit salami. The enriched formulation exhibited higher dietary fiber content and enhanced antioxidant potential due to the natural phenolic compounds present in plums. The addition of plum jam increased moisture content, resulting in a softer texture and improved mouthfeel compared to the control sample. Coconut contributed to a more balanced texture and increased dry matter content while providing valuable minerals and healthy lipids.

Color analysis indicated slight decreases in lightness (L*) and increases in redness (a*) and yellowness (b*) values, generating a richer and more appealing appearance. The sensory characteristics were positively influenced by the fruity notes of plum jam and the pleasant flavor of coconut.







Conclusions

The results demonstrated that the incorporation of plum jam and coconut positively influenced the physicochemical, nutritional, and functional properties of biscuit salami. The enriched formulation showed higher dietary fiber content, improved texture, enhanced antioxidant potential, and superior sensory characteristics compared to the conventional recipe.