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Development and Physico-Chemical Analysis of Gluten Free Baked Mathri

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ABSTRACT

Introduction: The growing incidence of gluten intolerance and the increasing demand for healthier, functional snacks have emphasised the need for innovative gluten-free product development. Traditional mathri, a widely consumed Indian savory snack, is primarily made with wheat flour, making it unsuitable for individuals with gluten-related disorders. This study aims to develop a gluten-free baked mathri by combining oat flour, corn flour, and bajra flour, while incorporating natural colourants such as beetroot powder, spinach powder, turmeric powder, and carrot powder to enhance both its nutritional profile and visual appeal.

Aim: This study aims to develop and assess gluten-free baked mathri by examining its physicochemical properties, including proximate composition (moisture, protein, fat, fibre, carbohydrates), antioxidant activity, and colour variations influenced by natural pigments. Additionally, the research evaluates sensory acceptability to determine the most optimal formulation for commercial application.

Materials and Methods: Methodology for Gluten-free mathri was formulated using oat flour, corn flour, and bajra flour in predefined ratios. To achieve colour variations, beetroot powder, spinach powder, turmeric powder, and carrot powder were incorporated. The samples underwent physicochemical analysis, which included assessing moisture content, macronutrient composition (protein, fat, fibre, carbohydrates), antioxidant activity, and instrumental colour parameters. A trained sensory panel conducted evaluations using a nine-point hedonic scale, rating appearance, texture, taste, crispiness, colour, and overall acceptability. Statistical tools were applied to analyse the influence of natural colourants on the mathri quality attributes.

Results: The research is still in progress. It is anticipated that incorporating natural ants such as beetroot, spinach, turmeric, and carrot powder will have a notable impact on the physicochemical properties, antioxidant activity, and sensory attributes of gluten-free baked mathri. Certain ant combinations are expected to enhance nutritional value while preserving consumer acceptability, resulting in a visually appealing and functional gluten-free snack.

Conclusion: The final findings will provide valuable insights into the commercial viability of these formulations.

Keywords: Gluten-free, Baked mathri, Natural colourants, Physicochemical analysis, Sensory evaluation

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