

Development of Biscuits Using Germinated Amaranth Flour and Rice Bran Flour: A Review

ABHISHEK YADAV¹, LAKHVINDER KAUR²

ABSTRACT

Introduction: The demand for functional and nutritious baked products is increasing due to growing health consciousness. Amaranth (*Amaranthus spp.*) and rice bran are nutrient-dense ingredients, rich in proteins, dietary fibre, and bioactive compounds. Germination enhances the bioavailability of essential nutrients in amaranth, while rice bran provides dietary fibre and antioxidants. This review explores the potential of incorporating Germinated Amaranth Flour (GAF) and Rice Bran Flour (RBF) into biscuit formulations for improved nutritional and functional properties.

Aim: To evaluate the impact of GAF and RBF incorporation on the nutritional, sensory, and functional properties of biscuits and discuss the challenges and opportunities in their commercial development.

Methodology: A systematic review of existing studies on biscuit formulation using GAF and RBF was conducted. Research focusing on proximate composition, physicochemical properties, sensory

evaluation, and storage stability was analysed. The effects of varying flour ratios, baking conditions, and fortification techniques were also reviewed.

Results and Discussion: Studies indicate that biscuits enriched with GAF and RBF exhibit higher protein, fibre, and antioxidant content compared to conventional wheat-based biscuits. Germination improves protein digestibility and mineral bioavailability, while rice bran enhances fibre content and oxidative stability. However, challenges such as gluten-free texture modification, sensory acceptability, and shelf-life optimisation require further research.

Conclusion: GAF and RBF offer significant potential for developing nutritionally enhanced biscuits. Future research should focus on optimising formulation strategies, consumer acceptability, and large-scale production to promote healthier bakery products.

Keywords: Germinated amaranth, Rice bran flour, Functional biscuits, Bioavailability, Dietary fibre, Fortification

PARTICULARS OF CONTRIBUTORS:

1. BSc Student, Department of Nutrition and Dietetics, School of Allied Health Sciences, Manav Rachna International Institute of Research and Studies (Deemed to be University), Faridabad, Haryana, India.
2. Associate Professor, Department of Nutrition and Dietetics, School of Allied Health Sciences, Manav Rachna International Institute of Research and Studies (Deemed to be University), Faridabad, Haryana, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Abhishek Yadav,
BSc Student, Department of Nutrition and Dietetics, School of Allied Health Sciences, Manav Rachna International Institute of Research and Studies (Deemed to be University), Faridabad-121004, Haryana, India.
Email: abhishekyadav11120@gmail.com