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Buckwheat in Gluten-Free Diets: Nutritional Value and Potential for Functional Food Development

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ABSTRACT
Buckwheat is a naturally gluten-free pseudocereal with potential to improve the nutritional quality of gluten-free foods. This review examines its composition, food applications and processing options, with emphasis on formulation performance, sensory acceptability and safety. Product-specific evaluation remains necessary to establish technological performance and functional benefits.

INTRODUCTION
Gluten-free diets require diverse ingredients for nutritionally balanced and sensory-acceptable foods. Buckwheat (Fagopyrum esculentum Moench) offers an alternative for people with coeliac disease or other conditions requiring gluten exclusion.

OBJECTIVE
To examine the nutritional value and functional potential of buckwheat and its applications in gluten-free food development.

MATERIAL AND METHOD
Narrative review addressing the themes outlined in the abstract:
1. Nutritional composition and bioactive compounds.
2. Applications in bread, pasta and biscuits.
3. Germination and fermentation.
4. Formulation constraints and product safety.

NUTRITIONAL CONTRIBUTION

Proteins and dietary fibre	Contribute to the nutritional profile of gluten-free formulations.
Minerals	Nutrient availability is an important consideration during processing [1].
Phenolic compounds, including rutin	Support interest in buckwheat as an ingredient for functional food development.

CONCLUSIONS
Buckwheat can diversify gluten-free diets and improve nutritional quality in optimised formulations.
Product-specific evaluation should establish technological performance, consumer acceptance and whether compositional advantages translate into functional benefits.

RESULTS AND DISCUSSIONS

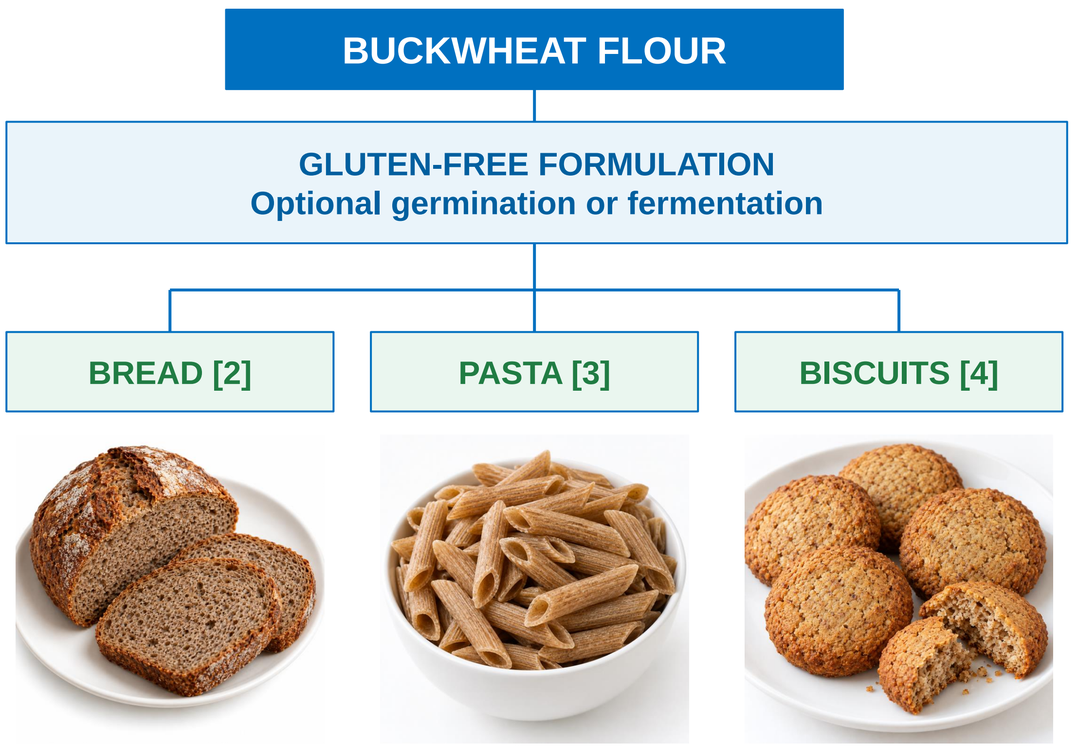


Figure 1. Buckwheat applications in gluten-free foods [2–4].
AI-generated illustrative images.

Food applications
Buckwheat flour diversifies gluten-free bread, pasta and biscuits. Formulation affects dough properties, texture, colour and sensory acceptability [2–4].

Processing opportunities
Germination and fermentation may modify nutrient availability, reduce antinutritional factors and improve technological properties [1, 2].

Formulation and safety
Optimise incorporation levels and processing to address the absence of a gluten network and the distinctive flavour. Prevent gluten cross-contact and consider buckwheat allergenicity [1].

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KEYWORDS
Buckwheat; gluten-free diet; pseudocereals; nutritional value; bioactive compounds; functional foods