

Upcycled new bread types: Beta Ferm upcycling technology in the bakery sector

FOODRUS

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#upcycling #bread
#fermentation
#zerowaste



Innovative BetaFERM technology was identified through a public survey as an existing technological solution for expanding its current rather low use in the bakery sector. Its potential was used by less than 10% and only in the bakery production. Its applicability can be extended to other food sectors.

BetaFERM represents a new innovative technology for valorization of waste streams during food processing (upcycling) by utilization and transformation of food side materials to another form, which offers higher added value as a new ingredient or directly as a food product for human consumption. It enables practical knowledge transfer into food production and contributes to creating a more conducive environment to business innovation. Positive effects are on sustainability and human health.

Transformation of two waste products and their use in bakery recipes were investigated:

1. Solid soya-pulp (okara) – a semi-product from tofu cheese production, made from soya beans with very limited usability (small part of okara is utilized in soya paté product), almost 80% to 90% of okara is wasted.
2. Wheat brans - is side stream in milling of cereals, mainly wheat. The source of fibre, minerals and enzymes with only rare utilization in food production.

The principle lay in the mechanical and physical treatment of components in specific combinations with biological treatment, using the method of targeted fermentation similar to the biological transformation in nature.

The aim was to develop optimal fermentation methods for up to time unprocessed food waste streams, as well as optimization of bakery product's recipes for integration of newly developed food materials into bakery products.



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The main result is that after a special fermentation process both waste products, okara and wheat brans, proved to be very suitable for further use in the production of fermented bread and also pastry (even if pastries were not tested in this study, the parameters of okara Betagel seems to be perfectly fit for both basic types of bakery products as ingredient with improving impact on final quality).

Wheat bran Betagel is suitable for all whole grain and acid cereal type baked products from wheat and rye. The addition of 10% wheat bran Betagel to whole grain bread has strongly improved its yield and shelf life, as well as content of total fibre in bread, also increased its cereal taste and aroma.

Industrial utilization of okara and wheat brans by BETAferm proved to be fully possible.

About

Coordinated by the University of Deusto and comprising 27 partners from 10 different European countries, the EU-funded FOODRUS project aims to limit food losses and waste, and to promote resource efficiency across all stages of the agri-food value chain. FOODRUS is working to tackle the food waste and losses by creating resilient food systems across nine European regions. To achieve this, the project will test 23 circular solutions through diverse forms of collaborative innovation.

Consortium



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