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Technological approaches applied in the design of gluten-free bakery products

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Abstract: Gluten-free (GF) bakery products differ significantly from standard wheat flour products, usually with inferior characteristics. To reproduce the visco-elastic properties of wheat flour dough, GF bread is balanced by complex formulations based on gluten-free flour and starches, including hydrocolloids. They must ensure maximum similarity with conventional products to reduce the resistance of final consumers to GF products. Identifying formulations or technologies that would help mimic the gluten matrix has been and remains the focus of research in GF product design. Most research focuses on ingredients. This study provides an overview of the various technological strategies in designing GF bakery products: technologies applied to cereals, flours, dough, and final products. The study could broaden the boundaries regarding developing, selecting, and using technologies to design GF products. It would also serve as a support for further research into the development of GF products, perhaps by leveraging local products and ingredients and adapting efficient, low-cost, environmentally friendly (including combined) technologies in such a way as to obtain products with high nutritional, rheological and organoleptic value.

Keywords: technological strategies; organoleptic indices; rheological properties; nutritional value

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