

New Strategy to Develop Metabiotic Sourdoughs for Gluten-Free Bread Functionalization

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Extended Abstract

Identification of emergent technologies towards novel and functional foods is the main concern for researchers and food manufacturers [1]. In this context, the exploitation of unconventional and underutilized flours or by-products for performant fermentation processes with selected starter cultures or artisanal consortia to obtain bioactive sourdoughs rich in metabiotics (prebiotics, probiotics, postbiotics, paraprobiotics) can contribute to the diversification of bakery products with beneficial effects [2], [3].

The major objective of this work was to assess the impact of two different gluten-free sourdoughs made of chickpea, quinoa, buckwheat, and okara by fermentation with selected lactic acid bacteria strains, respectively with selected water kefir grains on a gluten-free bread. The obtained sourdough's addition (0-25% w/w) extended the shelf-life of the bakery products against molds spoilage with 2-4 days. Moreover, maximum values for the antioxidant activity (ABTS) were determined for both samples supplemented with 25% (w/w) sourdough, after 2 hours of intestinal digestion using an *in vitro* simulated model [4]. The results ranged between 2.97-4.89 mM TE/100 g DW bread. A DPPH radical scavenging inhibition of 17.32% was determined for the sourdough bread containing 25% (w/w) sourdough fermented by the water kefir grains' consortium, whereas 29.60% inhibition of the DPPH was determined for the sample with 10% (w/w) sourdough fermented by the selected lactic acid bacteria strains from MIUG Collection. This study offers innovative perspectives for obtaining clean label gluten-free bakery products with increased stability and functionality.

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