

Kluyveromyces marxianus ABB S8 as Yeast-Based Technology to Manufacture Low FODMAP Baking Good

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Abstract : Small molecules known as fermentable oligo-, di-, and monosaccharides and polyols (FODMAPs) are quickly fermented in the large intestine after being poorly absorbed in the small intestine. There is proof that individuals suffering from functional gastrointestinal disorders, like irritable bowel syndrome (IBS), observe an improvement while following a diet low in FODMAPs. Because wheat has a relatively high fructan content, it is a key source of FODMAPs in our diet. A yeast-based method was created in this study to lower the amounts of FODMAP in (whole wheat) bread. In contrast to fermentation by regular baker yeast, the combination of *Kluyveromyces marxianus* ABB S7 with *Saccharomyces cerevisiae* allowed a reduction of fructan content by 60% without implying the appearance of other substrates categorized as FODMAP (excess fructose or polyols). The final FODMAP content in the developed whole wheat bread would allow its classification as a safe product for sensitive people, according to international consensus. Cocultures of *S. cerevisiae* and *K. marxianus* were established in order to ensure sufficient CO₂ generation; larger quantities of gas were produced due to the strains' synergistic relationship. Thus, this method works well for lowering the levels of FODMAPs in bread.

Keywords : *Kluyveromyces marxianus*, bakery, bread, FODMAP, IBS, functional gastro intestinal disorders

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