

## Targeted Sourdough Bioprocessing in Improving the Functional Properties of Cereal-Based Products

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### Abstract

Current trends indicate that consumers are increasingly demanding for artisan baked goods with premium quality and composed of multiple grains including legumes. A key process in traditional artisan bakery is the utilization of sourdough fermentation which is simply initiated by mixing water and flour and allowing spontaneous fermentation by indigenous yeasts and lactic acid bacteria. In addition, sourdough is also produced by using backslopping which involves utilization of a mother dough obtained from the previous fermentation process. Extensive studies have been done to evaluate the sourdough ecosystem and to determine how sourdough fermentation can be tailored to improve the bread quality.

Our research on sourdough technology has in the past years focused on production of functional metabolites including exopolysaccharides (EPS) and maltosyl-isomalto-oligosaccharides (MIMO) by selected LAB. The EPS and MIMO have been shown to effectively improve the technological and physiological quality of composite breads containing wheat and other minor cereals and also enable the recycling of surplus bread that is commonly generated in the baking industry, and brewers' spent grains, originating from beer brewing. Further studies have also shown that the production of EPS can be a novel way to effectively minimise off-flavours (e.g., bitter taste, and aftertaste) originating from non-wheat grains. This however entails production of an optimal amount of the EPS with high molar mass. This presentation will provide an overview of our studies and highlight the role of targeted sourdough as a 'clean label' technology to improve dough rheology, baking performance and bread flavour characteristics.