



Book of Abstracts

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Politecnico
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Poster Presentations



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Application of NMR spectroscopy for novel foods benefactory for gut health

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Impact of novel foods on human gut health represents a significant scientific and medical interest. Therefore, investigation of their effect on digestion requires additional analytical techniques. Here, we report our two recent case studies applying NMR spectroscopy and microbiological analysis in this field.

The first one is a characterization of sauerkraut fermentation. There is evidence that fermented cabbage can provide benefits to intestinal health, and rRNA metataxonomics has been used to demonstrate the decrease of bacterial diversity during fermentation. Also, NMR shows significant change in microbial metabolites during this process. The final product inhibits inflammatory response and regulates intestinal immune function.

The second one is a study of faecal fermentation of Tritordeum sourdough breads (SDB) and assessment of its effects on gut health in comparison to that of traditional baker's yeast (BYB) Tritordeum breads. The changes in microbial metabolites during fermentation of both substrates were investigated using NMR. Also, gut microbial ecology was studied by various microbiological methods. Both SDB and BYB demonstrate an increase in abundances of some bacterial genera. The concentrations of organic acids were elevated for SDB compared to BYB. Thus, Tritordeum sourdough modulates fermentation activity of gut microbiota and can positively impact the gut health.