

# ANTIFUNGAL POTENTIAL OF LACTIC ACID BACTERIA AGAINST ASPERGILLUS NIGER STRAIN ISOLATED FROM RYE BREAD

Kärt Kontram<sup>1,2</sup> (presenting author), Ene Viiard<sup>1</sup> (co-author), Marianna Surženko<sup>1,2</sup> (co-author),  
Inga Sarand<sup>2</sup> (co-author)

<sup>1</sup>Center of Food and Fermentation Technologies, Akadeemia tee 15A, 12618 Tallinn, Estonia

<sup>2</sup>Department of Chemistry and Biotechnology, Tallinn University of Technology, Ehitajate tee 5,  
19086 Tallinn, Estonia

e-mail of presenting author: kart.kontram@tftak.eu

The spoilage of bakery products is mainly caused by fungal growth what leads to economic losses not only for industrials but regular consumers as well. Lactic acid bacteria (LAB) are commonly known to play an active role in preservation of fermented food, producing a large range of antifungal metabolites [1]. 26 isolated LAB cultures, mainly from sourdoughs, were analysed to determine correlation between the numerous anti-mould *in vitro* and *in vivo* assays. The anti-mould effect was tested with common bread mould *Aspergillus niger*. *In vitro* assays were carried out by performing well diffusion assay and dual agar plate method using de Man, Rogosa and Sharpe (MRS) or sourdough bacteria (SDB) and Saboraud media. 9 LAB cultures exhibited antifungal activity in dual agar plate tests, whereas in well diffusion assay with cell-free supernatants no inhibition was observed. These strains that showed good results *in vitro* assays were consequently tested *in vivo* assays, where model breads were prepared from sterile rye flour, water and sourdough fermented with a single LAB strain. The growth of the mould on bread slices was evaluated at room temperature. The breads made with *Lactobacillus brevis* L62 and M30I-2 remained mould-free during one month. Bread with *Lactobacillus paralimentarius* M3 was able to inhibit mould growth for a week. In order to determine the mechanism of the anti-mould activity of these lactic acid bacteria, the metabolic compounds responsible for inhibition would be identified.

## References

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