

# IMPACT OF *PICHIA KLUYVERI* AND *STREPTOCOCCUS THERMOPHILUS* FERMENTATION ON MILK FLAVOUR

Kaia Kollo<sup>1</sup>, Kristi Kõrge<sup>2</sup>

<sup>1</sup>*Business Academy Aarhus, University of Applied Sciences, Sønderhøj 30, DK-8260 Viby J*

<sup>2</sup>*Department of Food Processing, Tallinn University of Technology, Ehitajate tee 5, 12618 Tallinn, Estonia*

<sup>2</sup>*Competence Center of Food and Fermentation Technologies, Akadeemia tee 15A, 12618 Tallinn, Estonia*

e-mail: kristi@tftak.eu

Yeasts are used for generating different flavour characteristics in food and beverages. The use of non-*Saccharomyces* yeast species has not been investigated in the dairy industry because traditionally mostly lactic acid bacteria (LAB) are used in fermentation. Kefir is the only milk product where yeast is used but together with LAB. In this paper the aim is to find out that is it possible to use non-*Saccharomyces* yeast, which produces special aroma characteristics in wine-, cider- and beer production, to ferment reconstituted milk and receive product with acceptable sensory quality. Sample series of 10 samples with yeast concentrations of 0,1 - 1 mL/0,1L and LAB concentration of 0,1 mL/0,1L for 24H fermentation is used to determine one most feasible sample. Chosen sample is used to construct following sample series of 4 samples (reference: pasteurised and autoclaved; inoculated: pasteurised and autoclaved) for 159H fermentation. Results are gathered using GC-MS analysis and sided with SINAC pH measurements and sensory analysis. According to GC-MS isoamyl acetate concentration measurement results it can be concluded that *P. kluyveri* grow in reconstituted milk matrix. Sterilized milk sample with concentrations of *S. thermophilus*:*P. kluyveri* 0,1:1 mL/0,1L has most potential ratio between two microorganism concentrations. According to sensory analysis, samples fermented with *P. kluyveri* has a sweet banana/pear aroma, but by adding LAB, product (sourness by LAB) will obtain more balanced taste and aroma. Isoamyl acetate accumulates with different sterilisation processes differently - more stable within autoclaved sample. After 24H isoamyl acetate production continues but samples are not acceptable because of unacceptable taste and texture. Regarding to pH analysis results, different sterilization method and yeast fermentation alone do not affect milk pH during fermentation. *S. thermophilus* is good agent for inhibiting spoilage by lowering pH under 4,5 within 12H in 30°C inoculated reconstituted milk samples.



Euroopa Liit  
Euroopa  
Regionaalarengu Fond



Eesti  
tuleviku heaks