

The use of kveik norwegian yeast for the production of new England India pale ale beer

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Abstract

Kveik yeast, traditionally used in Norway are a very diverse group, classified as a top-fermenting yeast, characterized by strong flocculation, high fermentation rate, high temperature resistance during fermentation (< 30°C) and a unique taste profile. Therefore, the aim of the work was to design beers using various KVEIK yeasts and their influence on the fermentation process and on the physicochemical and sensory parameters of obtained beer, and also compare them with commonly used SafAle US-05 yeast. The biological material used for wort fermentation consisted of four mixtures of Norwegian KVEIK yeast, such as: Horniwdak Var Kveik (HVK), Lida Kveik (LK), Var Kveik (VK), FM 53 Voss Kveik (FM53) and also commercial *Saccharomyces cerevisiae* SalAle US-05 (US05) yeast. Produced beers were analyzed in terms of: pH, extract, alcohol, degree of fermentation, density (infrared spectroscopy), calories, carbohydrates profile, glycerol (High Liquid Performance Chromatography) and sensory analysis where testers tasted foaminess, clarity, colour, CO₂, saturation, bitterness, odour and taste. The real degree of fermentation of all beers ranged from 69.79% in FM53 beer to 71.28% in LK beer. Also, the content of ethyl alcohol in the tested beers was at a similar level. No statistically significant differences in alcohol content were found, however the lowest content was determined in FM53 beer, which was 5.05%, while the highest in US05 beer – 5.58%. The calories content of all tested beers was also at the same level and ranged from 34.04 kcal/100 mL in FM53 beer to 38.03 kcal/100 mL in US05 beer.

Conclusion: Studies have shown that beers fermented with yeast KVEIK type do not differ physicochemical parameters from those fermented commonly used yeast SafAle US-05. The calories content of all tested beers was also at the same level and ranged from 34.04 kcal/100 mL in FM53 beer to 38.03 kcal/100 mL in US05 beer. Norwegian KVEIK yeast can be successfully used for the brewing of New England India Pale Ale beer. Noteworthy is the fact that the use of different yeast variants influenced the sensory evaluation of beer.

Biography:

Prof. Joanna Kawa-Rygielska is the head of Department of Fermentation and Cereals Technology in Wroclaw University of Environmental and Life Sciences. She has many years of experience in research on fermentation processes and yeast cells. She is an author of 103 scientific publications including: original articles, books, monographs, conferences.



Speaker Publications:

- Joanna Kawa Rygielska et al; Backset valorization in dry-grind ethanol process by co-culture of edible filamentous fungi and fodder yeast; May 2019
- Joanna Kawa Rygielska et al; Fruit and herbal meads – Chemical composition and antioxidant properties; July 2019
- Joanna Kawa Rygielska et al; Methylcarbene: the singlet-triplet energy separation; February 2020
- Joanna Kawa Rygielska et al; The cage effect and energetic and steric requirements of elementary bimolecular reactions in condensed phases; August 2019
- Joanna Kawa Rygielska et al; Nonlinear optical properties of fullerenes and charge-transfer complexes of fullerenes; September 2018

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