BREWING DIVERSITY: PHENOTYPIC AND MOLECULAR CHARACTERIZATION OF YEAST FROM TRADITIONAL LITHUANIAN BEERS

Paulina Morkytė[1], Justina Stonytė[1], Rasa Pauliukaitė[1]

[1]Center for Physical Sciences and Technology (FTMC), Department of Nanoengineering, Lithuania
paulina.morkyte@ftmc.lt

Traditional farmhouse beers are products of spontaneous fermentation, which harbor diverse and local microbial communities [1]. In this study, yeast diversity was investigated in 19 unfiltered traditional Lithuanian home-brewed beer samples. Microorganisms were isolated and cultivated on Wallerstein Laboratory (WL) agar, where distinct colony morphologies were differentiated based on color, texture, and agar color reactions. In total, ten morphologically distinct yeast-like colony types were identified, indicating metabolic heterogeneity among isolates. Microscopic examination revealed predominantly oval to round yeast cells, with observable variation in cell size between different morphotypes. Molecular identification was performed by PCR amplification of the fungal internal transcribed spacer (ITS) region, confirming the presence of *Saccharomyces*-type yeasts as well as non-*Saccharomyces* representatives. The results demonstrate considerable diversity within traditional Lithuanian beer fermentations, highlighting microbial biodiversity preserved through traditional brewing practices.

[1] M. Iorizzo, F. Coppola, F. Letizia, B. Testa, and E. Sorrentino, “Role of Yeasts in the Brewing Process: Tradition and Innovation,” Processes 2021, Vol. 9, Page 839, vol. 9, no. 5, p. 839, May 2021, doi: 10.3390/PR9050839.