

F.3. INFLUENCE OF RAW MATERIALS ON THE MICROBIOME AND ORGANOLEPTIC DEFECTS OF NATURAL VINEGARS

ALINA BOIȘTEAN*, SILVIA RUBÎTOV, AURICA CHIRSANOVA

*Technical University of Moldova, 168, Ștefan cel Mare bd, Chisinau, Republic of Moldova
email: alina.boistean@toap.utm.md*

Abstract. The quality of raw materials significantly influences the microbiological stability and organoleptic characteristics of vinegar, thereby directly affecting the quality of the final product. In contrast to concentrated, frozen, or canned raw materials, natural raw materials retain a more diverse indigenous microflora, which may contribute both to favorable fermentation processes and to the emergence of organoleptic defects. The present study investigated the microbiome of two natural vinegars, apple vinegar and grape vinegar, in relation to organoleptic deterioration, with particular emphasis on the occurrence of a nonspecific odor uncharacteristic of high-quality

vinegar. Shifts in the microbial community may indicate disturbances during fermentation or storage, resulting in the formation of undesirable metabolites responsible for sensory deterioration. The analysis revealed the presence not only of potentially pathogenic bacteria, but also of yeasts, including *Brettanomyces*, which likely contributed to the development of the off-odor. The findings demonstrated that the quality and condition of natural raw materials, together with the biochemical transformations occurring during production, play a decisive role in shaping the final organoleptic profile of vinegar. Therefore, microbiome monitoring in vinegar produced from natural raw materials is essential for identifying the risks and ensuring consistent quality and safety.

Keywords: vinegar; quality; microbial community; safety; *Brettanomyces*.

Acknowledgments: The research was supported by Institutional Project, subprogram 020405 “Optimizing food processing technologies in the context of the circular bioeconomy and climate change”, Bio-OpTehPAS, being implemented at the Technical University of Moldova.