INCORPORATING PROBIOTICS IN FERMENTED LOW ALCOHOLIC BEVERAGES: BENEFITS, CHALLENGES AND TECHNOLOGICAL PERSPECTIVES

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https://doi.org/10.52757/bsd26.60

Background: Incorporating probiotics into food is associated with multiple health benefits, including boosting the immune system, preventing gastrointestinal diseases, reducing cholesterol, and balancing the gut microbiota. They can also increase the nutritional value of food by improving nutrient absorption. Although the consumption of alcoholic beverages should not be encouraged at the population level, functional fermented beverages with minimal alcohol content can become vehicles for the delivery of probiotics, although the challenges related to their survival in the alcoholic environment remain significant.
Aim of the study: The present research focuses on the production and stabilization of probiotic beverages based on local and traditional materials (wheat bran, sour borscht) with the addition of red grape pomace extracts and sea buckthorn.
Materials and methods: Microscopic method was used for microbial identification and analysis of the morphology of microorganisms. Indigenous (autochthonous) microorganisms and those added during the production of probiotic drinks were inoculated on Sabureaud, IGC, MRS, BRODTH and other nutrient media by the "exhausted plate" method.
Results: The fermentation capacity and quality indices of beverages obtained on the basis of endogenous and exogenous microorganisms were tested. The identified microorganisms are yeasts, lactic acid bacteria, acetic bacteria, micrococci, streptococci. In the fermentation processes, they are activated in mutual symbiotic relationships, which is demonstrated by the formation of films on the surface of the beverages and associations on the bottom of the vessel, as well as dissemination on solid nutrient media. To monitor the fermentation process of apple beverages, the growth rate of the number of NTG-producing microorganisms was determined. The latent phase of adaptation is relatively short, the accelerated phase is fast (3-4 days). The fermentation process of beverages can be completed in 6-10 days. The technological scheme of production was developed, the physicochemical and sensory properties of low-alcohol beverages of the “Cider” type were analyzed, obtained on the basis of apple pulp with the addition of extracts from red grape pomace and sea buckthorn.
Conclusions: The manufactured low-alcohol probiotic beverages have high sensory and tonic properties, ensured by the natural chemical composition of organic acids, vitamins, enzymes. Native and added microorganisms, yeasts, lactic acid bacteria transform fermented solutions into acid-sugar beverages with an original taste.

Keywords: Beverages, probiotics, prebiotics, stabilization, clay-based materials

Acknowledgments: The research was funded undertheinstitutionalproject, subprogram 020405 "Optimization of foodprocessingtechnologies in the context of circular bioeconomyand climate change", Bio-OpTehPAS,