

## ISOLATION AND PRESERVATION OF YEAST STRAINS FROM WATER

**Balan (Bafir) Ludmila\*, Slanina Valerina, Gogdan-Golubi Nina**

*Institute of Microbiology and Biotechnology of Technical University of Moldova,  
Chisinau, Republic of Moldova*

E-mail: [ludmila.batir@imb.utm.md](mailto:ludmila.batir@imb.utm.md)

Yeasts are single-celled fungi that can be isolated from numerous environments, including soil, water, and other habitats. Due to their unicellular growth type and saprophytic nature, they colonize and exploit especially liquid substrates or habitats with high moisture content. A research was carried out to isolation of different types of microorganisms (such as: bacteria, actinobacteria, cyanobacteria and microalgae, filamentous fungi and yeasts) from water of the "La Izvor" park lakes. The aim of the research was isolation a pure culture of microorganisms, identification of strains with biotechnological potential and their preservation by different methods.

For study were isolated four new yeast strains on malt agar medium used as a nutrient medium for the cultivation and growth at temperature of +28°C, for 48-72 hours. Preservation was carried out by the lyophilization method in skimmed milk with 7% sucrose served as a protective medium. After resuspending the culture in the protective medium and distributing 1 mL each in ampoules, the samples were freeze-dried at t<sup>0</sup> - 80°C, then lyophilized in the Free Zone Plus system, after that sealed and stored at +4°C.

The determination of the yeast cultures viability was carried out by the method proposed by Donev 2002 according to the principle of serial dilutions into a sterile Petri dishes, to measure colony-forming units and performing statistical calculations using the MS Excel 2010 program.

As a result of this study, from water of lakes of the "La Izvor" park were isolated in pure culture five strains of yeasts, one of them being pathogenic (g. *Candida*) was excluded. According to the first tests of morphological and cultural characteristics, three out of four strains belong to g. *Saccharomyces* and one to g. *Schizosaccharomyces*. It is known that yeast strains have ability to synthesize important substances widely used in agriculture. After identification by molecular biological methods will be followed biochemical properties determination of selected strains for replenishing the National Collection of Non-pathogenic Microorganisms.

As a result of the lyophilization preservation of selected strains, we found that their viability after lyophilization varies between 89-94% for three strains belong to g. *Saccharomyces* and 11-16% lower for representative strains of *Schizosaccharomyces*, or up to 22% compared to the viability before lyophilization. Within the National Collection of Non-Pathogenic Microorganisms there are strains that have significant osmotic and thermal shocks at the process of preservation by lyophilization. Also, it has been demonstrated that after several years of storage the viability is maintained or decreases insignificantly, but a high viability after lyophilization cannot be guaranteed to long-term preservation.

**Keywords:** yeast, lyophilization, preservation, water.