

ENVIRONMENTALLY SOUND TECHNIQUES FOR SELECTION OF PRODUCTIVE STRAINS OF MORTIERELLA ALPINA PEYRONEL

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Abstract. *Background.* In the modern period, due to the increased environmental burden and the situation of the economic crisis, considerable attention of researchers in the field of biotechnology is drawn to natural sources of valuable substances that allow solving the problem of their deficiency in a relatively inexpensive, safe and environmentally friendly way, based on the principles and logic of a living organism - the product -cent. Representatives of the tribe of Mortierella mushrooms - fungi of the species *Mortierella alpina* have the ability to synthesize arachidonic acid, metabolites can serve as the basis for obtaining products that contribute to the formation of animal immunity and plant growth processes. From a practical point of view, the well-known fact of the qualitative and quantitative features of the structure of the fatty acid profile of the mycelium of different strains is important, and the requirements for nutrient media can act as limiting the development and realization of the productive potential of the organism. The aim of the study is to develop techniques for selecting productive strains of *M. alpina* capable of developing on various substrates. At the first stage of the work, the following tasks were solved: the study of the productive properties of *Mortierella* fungi present in the collection and the selection of the most promising strains; study of the possibilities of increasing the productive properties of promising strains by induced mutagenesis and selection; study of the influence of the composition of nutrient media on the growth and productive properties of strains; development of ways to immobilize the culture and maintain a biochemically stable state. *Results.* The conducted studies allowed to establish the prospects for the implementation of methods of selection of producer strains. The content of fatty acids in the composition of the mycelium of the studied groups of mutants differs, as well as the volume of production of arachidonic acid, as the target product, in the general profile of PUFAs. Implementation of the methods of induced mutagenesis made it possible to obtain a series of phenotypic classes of mutants, which were subjected to a comprehensive study. The ratio of cultures to nutrient media of various compositions was assessed, and cultures with the most stable fatty acid profile that met practical interests were screened. *Conclusions.* The variability of *M. alpina* mutant strains determines the formation of material for screening thermotolerant productive strains. And the preservation in selected strains, cultural, morphological and growth indicators on different nutrient media in a number of generations can serve as a marker of stability and productive characteristics.

Keywords: fatty acids, ecological valency, mutagenesis, screening, arachidonic acid

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