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INFLUENCE OF PERFLUORODECALIN WITH GAS TRANSPORT FUNCTION ON GROWTH OF MICROORGANISMS

Abstract. In the work influence of perfluorodecalin on growth and development of microorganisms of different groups is investigated. Entering into liquid nutrient mediums perftororganical connections with gas-transport function is shown, that, in particular perfluorodecalin in concentration of 0.2-2 % provides a gain of a biomass of microorganisms. The opportunity of use of perfluorodecalin in biotechnological processes of cultivation bacteria of Rhodococcus, Escherichia, Pseudomonas and Bacillus and мicomicetes Penicillium, Fusarium and Saccharomyces is shown. Investigation of influence of perfluorodecalin in Chapek-Dox media upon change of micromycethes biomass has a certain interest. Results of experiments testify that the maximal content of biomass quantity have been noted in each 48-96 hours at the growth of culture of micromycethes P. chrysogenum MB 104, F.moniliforme BУ 245, F.graminearum 534, S. cerevisiae K on Chapek-Dox media with addition of 2 % of perfluorodecalin, concentration peak of biomass on the media without perfluorodecalin have been obtained on 48 hours later. Herewith maximum values of the biomass on media with perfluorodecalin in 2 times (penicill and fuzaries) exceed the maximums, reached on ambience without perfluorodecalin.

Key words: perfluorodecalin, microorganisms, biotechnological processes, gas-transport function, Chapek-Dox media.

Introduction. Lately development and putting into practice of modern technologies of microorganisms cultivation, obtaining of the microbe biomass and biological active compounds - products of activity of bacteria and micromycethes, have the major practical meaning. Nowadays the various nourishing products, protein preparations, amino acids, organic acids, spirits, physiological active substances - antibiotics, enzymes, hormones, facilitators of the growing, vaccines against infectious diseases of the person and animal, facilities of the fight with insect and rodent - a vermin of the agriculture are obtained by help of microorganisms.

The majority of microorganisms using by human in biotechnology for growth, development and production of biological active substances need oxygen for providing of high energetical exchange [1]. Oxygen is the most important elements using by the microorganisms for building of structural components of microbial cell, for energy obtaining, and it participates in various biochemical reactions, providing the processes for the microbe activity. Provision by oxygen or it's removal for anaerobes, as well as removal of exhaust fumes and metabolism products is one of the most important factors of efficiency of biotechnological processes, defining the productivity of their biomass accumulation and synthesis of biological active substances.

The majority of microorganisms using by human in biotechnology need oxygen during processes of development. It is known that more high output of target product is provided by the deeply cultivation in fluid nourishing media. For normal growth of aerobes in deep layer of media the aeration and improvement of condition for transport gaz into microorganisms cells are required [2].