

**INFLUENCE OF THE BIO PRODUCT BioR ON THE LIPID COMPOSITION OF  
*STREPTOMYCES FRADIAE* CNMN-Ac-11 BIOMASS****Bereziuc I., Burtseva S., Birsa M.***Institute of Microbiology and Biotechnology, Republic of Moldova*

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Actinobacteria, including the genus *Streptomyces*, the most widespread in nature, are known for the wide range of bioactive substances they produce. Culture medium composition is crucial - the presence of certain components affects the composition of the obtained biomass, and directs the synthesis towards obtaining the necessary components.

Among the culture media offered for the cultivation of actinobacteria, mineral media are widely used - Dulaney, Pruss, Czapek with glucose or sucrose, etc., as well as complex or organic media in which the main source of carbon is flour (soybean, corn, etc.), as well as various additives (corn extract, molasses, baker's yeast, yeast hydrolyzate) and mineral salts. To obtain more biomass, reduce its cost, various components are added to obtain the desired effect. Actinobacteria are known for their ability to form lipids. Lipids perform many functions: they exhibit antibacterial, antioxidant, immunostimulating and antitumor properties, phospholipids regulate the activity of membrane enzymes.

As object of the study served strain *Streptomyces fradiae* CNMN-Ac-11, isolated from the soil of the central part of Republic of Moldova. To study the effect of nutrient medium compounds on the lipids and the fractional lipid producing, the BioR preparation, an extract of amino acids and peptides from *Arthrospira platensis* CNM-CB-02, was added to the culture medium at different concentrations. After cultivation, the biomass was separated from the culture liquid in a centrifuge (5000 rpm for 20 min). The amount of biomass was determined by the weight method. Next, intracellular lipids were extracted from the biomass by the Folch method with modifications. The qualitative and quantitative composition of lipids was determined by thin-layer chromatography on Sorbfil plates and densitometrically.

When cultivating the strain *Streptomyces fradiae* CNMN-Ac-11 on a modified nutrient medium, an increase in biomass productivity was noted. The maximum increase in the amount of biomass was observed when BioR was added at a concentration of 0.1%: by 18.2% more compared to the control sample. The study of the lipid composition of the biomass showed a lower content of lipids than in the control. Thus, the largest amount of lipids is contained in the biomass grown with the addition of the BioR preparation at a concentration of 0.1% to the R medium: the amount of lipids was 82.7% of the control sample.

The maximum amount of phospholipids was observed in lipid samples of the biomass of the strain grown on medium R with the addition of the substance at a concentration of 0.05% - 20.3% to total lipids. The largest amount of sterols was found in samples of total lipids of the biomass obtained by adding the substance to the medium at a concentration of 0.1%, and amounted to 14.7%. The amount of triglycerides was the highest in the lipid samples of the biomass of the strain growing on the R medium with the addition of the substance at a concentration of 1.0%, and amounted to 22.4% of total lipids.

Thus, the conducted studies have shown that in order to increase the productivity of the biomass of the strain *Streptomyces fradiae* CNMN-Ac-11 and the content of physiologically active lipid fractions (phospholipids and sterols) in it, the most optimal is the cultivation of the strain on the R complex medium with the addition of the BioR preparation at a concentration of 0.1-1.0%.

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