

THE STUDY ON THE DYNAMICS OF THE ACCUMULATION OF SULFATED EXOPOLYSACCHARIDES IN THE CULTURAL LIQUID DURING THE CULTIVATION OF SPIRULINA IN THE PRESENCE OF THE COORDINATIVE COMPOUND [CuL(NO₃)₂]

Turcan O.

Institute of Microbiology and Biotechnology, Republic of Moldova

Email: turcanolga2019@mail.ru

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Spirulina platensis is one of the key organisms that has shown interesting results in the treatment of some tumors, viral infections and immunodeficiency. Spirulina polysaccharides possess antitumor, antioxidant, immunomodulatory and antiviral activity. Thus, the study of these bioactive substances is of great interest with a view to their application in various fields (pharmaceutics, food, bioremediation, etc.). In order to establish the cultivation period required for the maximum accumulation of exopolysaccharides (EPS), the dynamics of the accumulation of sulfated exopolysaccharides in spirulina was studied.

As a stimulator and regulator of EPS synthesis, the coordinative compound [CuL(NO₃)₂] was selected in a concentration of 2 mg/l, which had a maximum effect on their synthesis, when cultivating spirulina for 7 days. Thus, the cultivation of spirulina was carried out for 26 days, during which the content of sulfated exopolysaccharides was recorded on each day of cultivation.

At the end of the experiment, it was established that the accumulation of sulfated exopolysaccharides in the spirulina culture liquid occurs gradually, and the coordinating compound [CuL(NO₃)₂] stimulates this process, the EPS values being 7-29% higher than the values obtained during cultivation in standard conditions. The maximum accumulation of sulfated EPS was detected on the 18th day, reaching the value of 46.00 mg/l, which constitutes approximately 85% of the total acid EPS accumulated. After the 18th day of cultivation, there is a gradual decrease in the content of sulfated EPS. As a result of the research, we can say that the maximum accumulation of total acidic and sulfated exopolysaccharides occurs earlier (18th day), than in the case of the reference sample (22nd day).