CZU: 579.83:573.6

DYNAMICS OF ACCUMULATION OF EXOPOLYSACCHARIDES IN CULTURAL LIQUID AT THE CULTIVATION OF *SPIRULINA PLATENSIS* SUPPLEMENTED WITH COORDINATIVE COMPOUNDS OF CU (II)

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Spirulina platensis is considered an excellent source of protein, vitamins, lipids, minerals, polysaccharides, nucleic acids, enzymes and pigments. In recent years, many polysaccharides isolated from seaweed have found applications in food, pharmaceuticals and cosmetics. Polysaccharides are a type of biomacromolecules that exist as structural components of the cell wall of seaweed and possess such activities as anti-tumour, immunomodulatory, antimicrobial, antioxidant, anticoagulant, antiviral etc. Usually, the bioactivities of polysaccharides are closely correlated with their chemical properties, such as molecular dimensions, types and ratios of constitutive monosaccharides and the characteristics of glycosidic bonds.

In this context, the aim of the present research was to evaluate the dynamics of accumulation of exopolysaccharides in the cultural liquid of the cyanobacterium *Sp. platensis* at the cultivation on the mineral nutrient *SP-1* supplemented with coordinative compounds of Cu (II), depending some parameters and cultivation conditions (temperature, pH and irradiation regime). Productivity of *Sp. platensis* was determined daily using photocolorimetric methods. As a stimulator and regulator of EPS synthesis, was selected the coordinative compound [$CuL(NO_3)_2$] in a concentration of 2 mg / l which had a maximum effect on their synthesis, when spirulina was cultured for 7 days. Cultivation was performed for 26 days, during which time the acidic and sulfated exopolysaccharides content was recorded on each cultivation day. Thus, it was attested that there is a gradual accumulation of acidic exopolysaccharides, the maximum accumulation of was detected on the 18th day, reaching the value of 55.08 mg / l, then there is a gradual decrease in their content. In the case of the reference sample, the content of exopolysaccharides accumulated up to day 18 shows lower values than in the case of the compound $CuL(NO_3)_2$, but their content continues to increase, reaching a maximum of 63.83 mg/l on 22nd day, in the following days the exopolysaccharide content decreases insignificantly. The dynamics of the accumulation of sulfated exopolysaccharides in the cultural liquid of spirulina shows like in the case of acidic exopolysaccharides, the maximum value on the 18th day being about 46.00 mg/l approximately 85% of total accumulated EPS After the 18th day of cultivation, the sulfated EPS content gradually decreases, so on the 26th day the values stabilize at 33.91 mg / l. As a result of this research we can deduce the following conclusion that under the action of the coordinative compound $CuL(NO_3)_2$ the maximum accumulation of total acidic and sulfated exopolysaccharides is recorded earlier (day 18) than in the case of the reference sample (day 22) and the presence of Cu^{2+} ions, influenced the synthesis and accumulation of acidic and sulfated exopolysaccharides in the cultural liquid of the cyanobacterium *Spirulina platensis*.

Keywords: *Spirulina platensis*, exopolysaccharides, cultural liquid, coordinative compound, dynamics of the accumulation.