

Extraction and Purification of Sulfated Polysaccharides from *Spirulina maxima*

Leite, C.M.¹; Medeiros, V.P.¹, Aguiar, J.A.K¹

¹Lab de Análise de Glicoconjugados, Dep. Bioquímica, ICB, UFJF, MG, Brazil

INTRODUCTION: *Spirulina sp* is a microalga that belongs to cyanobacteria phylum which produces various compounds with biological activity. Except for spirulan, a sulfated polysaccharide isolated from *S. platensis*, other polysaccharides present in *Spirulina* species are poorly studied. **OBJECTIVES:** Extract and purify sulfated polysaccharides from *Spirulina maxima*. **MATERIALS AND METHODS:** *S. maxima* polysaccharides were extracted under different conditions: water extraction, alkaline extraction, extraction after papain and alcalase digestion and extraction after cell lysis and proteolysis. Polysaccharides were precipitated by cetyltrimethylammonium bromide 1% or ethanol, resuspended in water and analyzed by agarose gel electrophoresis in acetate buffer 1,3-diaminopropane (PDA). Total sugar was achieved by Dubois method. Purification was performed by Ion Exchange Chromatography (IEC) on Q-Sepharose. **RESULTS AND DISCUSSION:** Different electrophoretic profiles were observed for the extraction methods. Ethanol was most effective to precipitate of *S. maxima* sulfated polysaccharides than detergent 1%. The total sugar content varies from 3.42%±0.02 to 24.02%±0.12, and cell lysis and proteolysis extraction method had the highest content (24.02%). After IEC four fractions containing sulfated polysaccharide were obtained. F0.5M NaCl had a band that migrates below heparan sulfate (HS). F1.0M and F2.0M showed bands with migration similar to chondroitin sulfate (CS) or dermatan sulfate (DS) and below the HS. F3.0M fraction showed band which comigrate with DS. **CONCLUSIONS:** Cellular lysis and proteolysis method gave best results for extraction of sulfated polysaccharides from *S. maxima*. IEC on Q-Sepharose showed different elution profile of sulfated polysaccharides with different electrophoretic migration, an indication that there are very different structural features between them.

Keywords: Sulfated polysaccharides, *Spirulina maxima*, spirulan.
Financial: CAPES