# CYANOBACTERIA AS AN ATTRACTIVE SOURCE OF POLYSACCHARIDES FOR FOOD AND COSMETIC APPLICATIONS

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Biopolymers produced by microalgae or cyanobacteria, as well as those extracted directly from cell biomass, such as polysaccharides,have been discussed and created a lot of interest, especially for food packaging, medical product, and other areas that, despite recent successful developments in bio-based polymers, continue to require improvement [1,2].
In the present work, extracellular polymeric substances (EPS) produced by the rod-shaped and filamentous cyanobacteria identified as cyanobacterium aponinum (PP663238). and persinema sp. (PP662646), respectively, were isolated. The EPS structure was investigated by chemical and instrumental analysis including Size Exclusion Chromatography (SEC), gas chromatography mass spectrometry (GC-MS), Fourier transform infrared (FTIR) spectroscopy, and nuclear magnetic spectroscopy (1H-NMR). The morphological, antioxidant, cytotoxic, and thermal properties of the EPS were studied. Chemical results revealed a rich composition in total sugars for both EPS with a heterogeneous polysaccharides. The structure and composition of the polysaccharides influence their thermal properties. In fact, the thermal resistance was equivalent for the EPS isolated from both strains with a difference in thermal stability. The scanning electron microscopy (SEM) images highlighted the difference of the EPSs in their surface structure. The EPS isolated from c. aponinum has a filamentary structure, leading to faster and rougher degradation and mass reduction compared to the EPS extracted from persinema sp which has a smooth plate structure. Both EPS displayed an effective antioxidant activity with tolerable cytotoxic effects. The outcomes of this study demonstrate the possible potential use of c. aponinum and persinema sp. EPS in several food and pharmaceutical applications.

**References:**

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