

SCREENING, IDENTIFICATION AND EXPLOITATION OF POLYSACCHARIDES FROM MICROALGAE

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Résumé.- Polysaccharides are produced by all living organisms but have been poorly described from microalgae. They exhibit a large variety of chemical structures based on glycosidically-linked combinations of monosaccharides. Various substituents such as acyl groups, amino acids or inorganic residues such as sulphates may be attached. Polysaccharides are widely exploited by industry as hydrocolloids (gelling, thickening, and emulsifying agents) and biological agents (substitutes for glycosaminoglycans, elicitors, antioxidants, etc.). They are renewable materials with a very large spectrum of chemical structures, and, as a consequence, a wide variety of physical and biological properties. The vast phylogenetic diversity of microalgae corresponds to an extraordinary diversity in chemical composition, making these organisms extremely attractive for bioprospecting and potential exploitation of polysaccharides. Microalgae may excrete large quantities of polysaccharides which represent a considerable amount of organic carbon. Many types of microalgae, notably those that live in near shore benthic environments, produce and excrete polysaccharidic mucilage to cover their cells, presumably in order to protect them from fluctuations in environmental conditions and/or predators. POLYSALGUE is an interdisciplinary research project involving a combination of biochemistry, physico-chemistry, process engineering and microbiology approaches. Its main objective is to increase the level of knowledge about the potential for production of soluble polysaccharides with original structures by microalgae from marine environments. It intends to develop the scientific background necessary for the industrial exploitation of these exopolysaccharides as hydrocolloids and/or biological active agents and to evaluate economic and environmental impacts of large scale production.