

Strategies for production of mono-sugars from inedible red seaweeds

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There is a growing worldwide interest in the potential of marine biomass as environmentally friendly and economically sustainable resources. Seaweed contains high levels of hydrocolloid compounds such as agar, carrageenan and alginate. Generally, chemical and enzymatic methods are used to hydrolyze the polysaccharides (biomass) into monosaccharides. Acids are typically used as the catalyst for chemical hydrolysis, while enzymes that break down polysaccharides into monosaccharides are used for biochemical hydrolysis. Chemical hydrolysis is widely used in the industry due to its high efficiency and low cost, but it generates toxic by-products as well as mono-sugars. In enzymatic process, target sugars without toxic compounds generation. The objective of this talk is to give optimal strategies for the production of galactose, glucose, reducing sugars and total sugars using the different hydrolysis conditions. The results indicated that different hydrolysis methods provided effective process for the producing mono-sugars from inedible marine biomasses. Based on these characteristics, the possibility of massive use of domestic seaweeds for the production of biofuels and bioplastics has been assessed.