

Comparison of sulfuric and hydrochloric acids as catalysts in hydrolysis of Kappaphycus alvarezii (cottonii)

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Abstract	In this study, hydrolysis of marine algal biomass Kappaphycus alvarezii using two different acid catalysts was examined with the goal of identifying optimal reaction conditions for the formation of sugars and by-products. K. alvarezii were hydrolyzed by autoclave using sulfuric acid or hydrochloric acid as catalyst with different acid concentrations (0.1-1.0 M), substrate concentrations (1.0-13.5%), hydrolysis time (10-90 min) and hydrolysis temperatures (100-130 C-A degrees). A difference in galactose, glucose, reducing sugar and total sugar content was observed under the different hydrolysis conditions. Different by-product compounds such as 5-hydroxymethylfurfural and levulinic acid were also observed under the different reaction conditions. The optimal conditions for hydrolysis were achieved at a sulfuric acid concentration, temperature and reaction time of 0.2 M, 130 A degrees C and 15 min, respectively. These results may provide useful information for the development of more efficient systems for biofuel production from marine biomass.
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