

Bioethanol production from the hydrolysate of *Palmaria palmata* using sulfuric acid and fermentation with brewer's yeast

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Abstract	Seaweeds, particularly species of red macroalgae, are promising resources for bioethanol production because of their exceptionally high carbohydrate content. Of 20 seaweeds evaluated, <i>Palmaria palmata</i> (<i>Rhodomenia palmata</i>) contained the highest carbohydrate content (469.8 mg g ⁻¹) seaweed) with a carrageenan content of 354 mg g ⁻¹ seaweed. Such a high carrageenan content makes the high-volume production of bioethanol feasible. Acid hydrolysis of <i>P. palmata</i> in 0.4 M H ₂ SO ₄ at 125 A degrees C for 25 min released 27 mg of glucose, 218.4 mg of reducing sugars, and 127.6 mg of galactose per gram of seaweed. Ethanol fermentation of these hydrolysis products using an inoculum concentration of 1.5 mg mL ⁻¹ at 30 A degrees C and 72 h in a shaking incubator at 130 rpm yielded 17.3 mg of ethanol per gram of seaweed.
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