

Comparison of agarophytes (*Gelidium*, *Gracilaria*, and *Gracilariopsis*) as potential resources for bioethanol production

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Abstract	This study explores the possibility of producing ethanol using the acid hydrolysate of three abundant agar-containing red seaweeds (agarophytes): <i>Gelidium amansii</i> , <i>Gracilaria tenuistipitata</i> , and <i>Gracilariopsis chorda</i> . The main component in the seaweed samples was agar, which ranged from 20 to 51 % (g g ⁻¹) dry weight). After optimizing acid hydrolysis, 100 g of seaweed was hydrolyzed at 130 A degrees C for 15 min with 0.2 M H ₂ SO ₄ . Then, 120 mL of a 1:2 mixture of the hydrolysate broth and basal medium was fermented in a 200-mL bottle at 30 A degrees C for 96 h. Of the three seaweeds, <i>G. amansii</i> had the best ethanol yield, producing 0.23 g g ⁻¹ of galactose or 45 % of the theoretical yield. This yield increased to 60 % after detoxification of the hydrolysate with activated carbon.
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