

Enzymatic saccharification of agar waste from *Gracilaria verrucosa* and *Gelidium latifolium* for bioethanol production

Publons ID	20523302
Wos ID	WOS:000416446400044
Doi	10.1007/s10811-017-1205-4
Title	Enzymatic saccharification of agar waste from <i>Gracilaria verrucosa</i> and <i>Gelidium latifolium</i> for bioethanol production
First Author	
Last Author	
Authors	Meinita, MDN; Marhaeni, B; Hong, YK; Jeong, GT;
Publish Date	DEC 2017
Journal Name	JOURNAL OF APPLIED PHYCOLOGY
Citation	12
Abstract	<p>Worldwide, 9600 t of agar is produced annually. Meanwhile, 60% of the waste produced from the agar industry yearly do not get treated. Our present study aims to study the enzymatic saccharification of solid agar waste produced from two of the most widely used agarophytes in the agar industry, <i>Gracilaria verrucosa</i> and <i>Gelidium latifolium</i>. <i>Gracilaria</i> species are the most common raw material in the food grade agar industry, while <i>Gelidium</i> species are the most common raw material used for bacteriological and pharmaceutical purposes because of the high-quality agar that is produced from these species. Our results showed that waste generated from agar extraction still contained sugars which could be optimized by acid pretreatment and enzymatic saccharification. <i>Gracilaria verrucosa</i> resulted in a higher agar yield (35.15 +/- 1.17%), but produced less agar waste (20.91 +/- 0.43%) than <i>G. latifolium</i>. After sequential acid pretreatment and enzymatic saccharification of the agar waste, the agar waste hydrolysate of <i>G. latifolium</i> resulted in higher glucose, galactose, and ethanol production, and a higher ethanol yield (18.17 +/- 0.75, 16.17 +/- 2.07, and 10.83 +/- 0.30 g L⁻¹ and 0.33 g g⁻¹), respectively) than <i>G. verrucosa</i>. The results from our present study may be used to optimize biorefinery utilization of <i>G. verrucosa</i> and <i>G. latifolium</i>.</p>
Publish Type	Journal
Publish Year	2017
Page Begin	3201
Page End	3209
Issn	0921-8971
Eissn	1573-5176
Url	https://www.webofscience.com/wos/woscc/full-record/WOS:000416446400044
Author	Prof. Dr MARIA DYAH NUR MEINITA, S.Pi