

研究论文

响应曲面法优化麒麟菜卡拉胶碱处理工艺

戚勃<sup>1</sup>, 李来好<sup>1</sup>, 杨贤庆<sup>1</sup>, 陈胜军<sup>1</sup>, 刘刚<sup>1</sup>, 李占东<sup>2</sup>

1. 农业部水产品加工重点实验室, 中国水产科学研究院南海水产研究所, 国家水产品加工技术研发中心, 广东 广州510300; 2. 东港出入境检验检疫局, 辽宁 东港 118300

摘要:

采用响应曲面法研究了碱液质量浓度、浸泡时间和浸泡温度对麒麟菜 (*Eucheuma*) 卡拉胶的凝胶强度和产率的影响。在单因素试验基础上采用Box-Benhnken中心组合试验, 以碱液质量浓度、浸泡时间和浸泡温度为影响因素, 以凝胶强度和产率为响应值建立二次回归方程, 通过响应面分析得到优化组合。结果显示, 碱处理优化工艺参数为碱液质量浓度250 g·L<sup>-1</sup>、浸泡时间3.5 d和浸泡温度25 ℃, 在此条件下提取的麒麟菜卡拉胶凝胶强度为721 g·cm<sup>-2</sup> (质量浓度10 g·L<sup>-1</sup>), 产率为35.17%。

关键词: 卡拉胶 麒麟菜 响应曲面 凝胶强度 产率

Optimization technology of alkali processing of *Eucheuma* carrageenan by response surface methodology

Qi Bo<sup>1</sup>, Li Laihao<sup>1</sup>, Yang Xianqing<sup>1</sup>, Cheng Shengjun<sup>1</sup>, Liu Gang<sup>1</sup>, Li Zhandong<sup>2</sup>

1. Key Lab. of Aquatic Product Processing, Ministry of Agriculture, South China Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences, National R&D Center for Aquatic Product processing, Guangzhou 510300, China; 2. Donggang Entry-Exit Inspection and Quarantine Bureau of the People's Republic of China, Donggang 118300, China

Abstract:

We studied the influence of 3 factors including alkali concentration, soaking time and temperature on gel strength (GS) and yield of *Eucheuma* carrageenan by response surface methodology (RSM). On the basis of single-factor investigation, Box-Benhnken central composite experiments were carried out to build the quadratic regression models for GS and yield with the above 3 factors, and the alkali processing technology was optimized by response surface analysis. The optimizing process parameters are: alkali concentration 250 g·L<sup>-1</sup>, soaking time 3.5 d, soaking temperature 25 ℃. Under the optimal processing condition, the GS and yield of carrageenan were 721 g·cm<sup>-2</sup> (under concentration of 10 g·L<sup>-1</sup>) and 35.17%, respectively.

Keywords: carrageenan *Eucheuma* response surface methodology gel strength yield

收稿日期 2011-07-08 修回日期 2011-09-21 网络版发布日期 2011-12-05

DOI: 10.3969/j.issn.2095-0780.2011.06.005

资助项目:

公益性行业(农业)科研专项(200903030-C); 海洋公益性行业科研专项(201005020-7); 广东省科技计划项目(2010B020201015); 广东省海洋渔业科技推广专项(A201008102, A200901102)

通讯作者: 李来好, E-mail: laihao@163.com

作者简介: 戚勃(1978-), 男, 助理研究员, 从事海藻加工及其综合利用研究。E-mail: 48980210@sina.com。

参考文献:

本刊中的类似文章

文章评论

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(984KB)
- ▶ [HTML全文]
- ▶ 参考文献[PDF]
- ▶ 参考文献

服务与反馈

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

本文关键词相关文章

- ▶ 卡拉胶
- ▶ 麒麟菜
- ▶ 响应曲面
- ▶ 凝胶强度
- ▶ 产率

本文作者相关文章

- ▶ 戚勃
- ▶ 李来好
- ▶ 杨贤庆
- ▶ 陈胜军
- ▶ 刘刚
- ▶ 李占东

PubMed

- ▶ Article by Cu,b
- ▶ Article by Li,L.H
- ▶ Article by Yang,X.Q
- ▶ Article by Chen,Q.J
- ▶ Article by Liu,g
- ▶ Article by Li,T.D

反馈人

邮箱地址

反馈标题

验证码

2607

▲

▼

Copyright by 南方水产科学