

亲本高温驯化和囊胚期热应激对刺参幼体生长、发育影响的初步研究

于姗姗¹, 王青林^{1,2}, 董云伟¹

1. 厦门大学海洋与地球学院, 近海海洋环境科学国家重点实验室, 福建 厦门 361005; 2. 中国水产科学研究院北戴河中心实验站, 河北 秦皇岛 066100

Effects of parent acclimation and heat-shock at gastrula on growth and development of sea cucumber larvae

YU Shanshan¹, WANG Qinglin^{1,2}, DONG Yunwei¹

1. State Key Lab. of Marine Environmental Science, College of Ocean and Earth Sciences, Xiamen University, Xiamen 361005, China; 2. Beidaihe Central Experiment Station, Chinese Academy of Fishery Sciences, Qinhuangdao 066100, China

[摘要](#)[图/表](#)[参考文献\(0\)](#)[相关文章\(15\)](#)全文: [PDF](#) (1022 KB) [HTML](#) (0)输出: [BibTeX](#) | [EndNote](#) (RIS)

摘要

文章探讨了刺参 (*Apostichopus japonicus*) 亲本南方驯化和囊胚期幼体热应激对浮游幼体生长、发育的影响。刺参亲本分为未度夏 (DA) 组和已度夏 (XP) 组, 每组设置对照组 (C) 和热应激组 (H), 在囊胚期对H组进行45 min、26 °C的高温应激, 然后分别在18 °C和23 °C下培育至变态。结果表明, 培育温度对H组和C组幼体的生长有显著影响, C组幼体在23 °C下的特定生长率高于18 °C, 而H组正好相反。从耳状幼体第2天开始, DA组和XP组幼体的最大体长开始出现在H组, 这与幼体对饵料的摄取有关。H组幼体的变态率要显著低于C组, 这归因于高温应激导致的高畸形率。DA组和XP组幼体的生长、成活以及附着变态率之间差异不显著。鉴于之前研究结果, 可通过下述途径获取耐高温刺参苗种: 首先在囊胚期进行高温应激获取耐高温幼参, 然后在南方进行幼体培育和中间养成, 性成熟后进行苗种繁育, 最后经过累代选育固定耐高温性状

关键词: 刺参, 高温驯化, 热应激, 生长, 发育, 耐热性

Abstract:

This study investigated the effects of parent-acclimation and heat-shock at gastrula stage on growth and development of sea cucumber (*Apostichopus japonicus*) larvae. The adult sea cucumbers were split into two groups: DA group and XP group, each with two treatments: control (C) and heat-shock (H). Gastrula larvae of H were heated at 26 °C for 45 min and then reared at 18 °C and 23 °C separately until metamorphosis. Results show that the specific growth rate at 23 °C was higher than that at 18 °C in the control, but the trend was opposite in heat-shock treatment. Since the 2nd day of auricularia, the maximum body length had been observed in heat-shock treatment for both DA and XP group, which was due to the ingestion of food. The setting rate of heat-shock treatment was significantly lower than that of the control due to the high rate of deformed individuals caused by heat-shock. Thus, high temperature-resistant sea cucumbers can be acquired via the following steps: first, obtain a certain number of high temperature-resistant juveniles by heat-shock at gastrula stage; then, culture these individuals in southern China until sexual maturity; finally, fix the high temperature-resistant properties by generation selection.

Key words: sea cucumber thermal acclimation heat-shock growth development thermotolerance

收稿日期: 2015-01-04 修回日期: 2015-03-04 出版日期: 2015-08-05

PACS: S 968.9

基金资助:

中国博士后科学基金 (2013M541862); 福建省杰出青年基金 (2011J06017)

通信作者: 王青林, (1984-), 男, 博士, 副研究员, 从事刺参生理生态学研究。E-mail: wangqinglin2009@gmail.com

作者简介: 于姗姗 (1987-), 女, 博士研究生, 从事潮间带生物生理生态学研究。E-mail: shanshineyu@126.com

引用本文:

于姗姗 王青林 董云伟. 亲本高温驯化和囊胚期热应激对刺参幼体生长、发育影响的初步研究[J]. 南方水产科学, 2015, 11(4): 46-52. YU Shanshan, WANG Qinglin, DONG Yunwei. Effects of parent acclimation and heat-shock at gastrula on growth and development of sea cucumber larvae. South China Fisheries Science, 2015, 11(4): 46-52.

链接本文:

<http://www.schinafish.cn/CN/10.3969/j.issn.2095-0780.2015.04.007> 或 <http://www.schinafish.cn/CN/Y2015/V11/I4/46>

服务

- [▶ 把本文推荐给朋友](#)
- [▶ 加入我的书架](#)
- [▶ 加入引用管理器](#)
- [▶ E-mail Alert](#)
- [▶ RSS](#)

作者相关文章

