

低盐胁迫对黄姑鱼幼鱼肝脏抗氧化功能的影响

张晨捷¹, 张艳亮^{1,2}, 高权新¹, 彭士明¹, 施兆鸿¹

1. 中国水产科学研究院东海水产研究所, 农业部东海与远洋渔业资源开发利用重点实验室, 上海 200090; 2. 上海海洋大学水产与生命学院, 上海 201306

Effect of low salinity stress on antioxidant function in liver of juvenile *Nibea albiflora*ZHANG Chenjie¹, ZHANG Yanliang^{1,2}, GAO Quanxin¹, PENG Shiming¹, SHI Zhaohong¹

1. Key Lab. of East China Sea & Oceanic Fishery Resources Exploitation and Utilization, Ministry of Agriculture; East China Sea Fisheries Research Institute, Chinese Academy of Fishery Sciences, Shanghai 200090, China; 2. College of Fisheries and Life, Shanghai Ocean University, Shanghai 201306, China

[摘要](#) | [图/表](#) | [参考文献\(0\)](#) | [相关文章\(15\)](#)
全文: [PDF](#) (998 KB) | [HTML](#) (0)输出: [BibTeX](#) | [EndNote](#) (RIS)

摘要

该实验设置3个盐度梯度(9、16、23, 分别记为S9、S16、S23), 其中S23为对照组, 对黄姑鱼(*Nibea albiflora*)幼鱼进行低盐度胁迫, 于第0、第1、第3和第7天进行取样。通过检测肝脏超氧化物歧化酶(SOD)、过氧化氢酶(CAT)、谷胱甘肽过氧化物酶(GSH-Px)和总抗氧化能力(T-AOC), 以及肝脏和血清的丙二醛(MDA)质量摩尔浓度, 研究低盐度对黄姑鱼抗氧化系统的影响。结果显示, 肝脏SOD活力呈上升后下降变化, 而CAT活力呈减弱后增强后再减弱的变化。肝脏GSH-Px活力出现了显著增强($P < 0.05$)。且盐度越低, 活力变化越剧烈。肝脏T-AOC在盐度16下呈现显著增强后减弱变化($P < 0.05$), 而S9组T-AOC显著减弱后维持在较低水平($P < 0.05$)。S9组肝脏与血清b(MDA)有显著升高($P < 0.05$), 而S16组肝脏b(MDA)呈上下波动变化, 血清b(MDA)则略有下降。实验表明, 盐度降低可显著影响黄姑鱼肝脏的抗氧化功能, 而黄姑鱼对低盐度有较强适应能力, 但胁迫过强会消耗机体储备, 降低机体抵抗力, 损伤鱼体。

关键词: 黄姑鱼, 肝脏, 抗氧化酶, 谷胱甘肽, 丙二醛

Abstract:

To investigate the effect of low salinity stress on antioxidant function of juvenile *Nibea albiflora*, we set three levels of salinities (9, 16, 23) and salinity of 23 as the control; the tissues were sampled on the 0, 1st, 3rd and 7th day to measure the superoxide dismutase (SOD), catalase (CAT), glutathione peroxidase (GSH-Px) activities and total antioxidant capacity (T-AOC) in their liver, as well as malondialdehyde (MDA) in their liver and serum. The results show that SOD activity in liver increased first then decreased, and CAT activity showed a decrease-increase-decrease trend under low salinity stress. GSH-Px activities in liver increased significantly ($P < 0.05$), and the lower salinity was, the more dramatic the changes were. T-AOC in liver decreased after a significant increase ($P < 0.05$) at salinity of 16, but decreased significantly and maintained a low level at salinity of 9 ($P < 0.05$). MDA contents in liver and serum at salinity of 9 increased significantly ($P < 0.05$); MDA contents in liver fluctuated, and those in serum decreased slightly at salinity of 16. The results suggest that low salinity has significant effect on the antioxidant function of liver from *N. albiflora*; and the *N. albiflora* is highly tolerated to low salinity but will consume energy reserve which leads to lower resistance even damage of fish when the stress is too strong.

Key words: *Nibea albiflora* liver antioxidant enzyme GSH MDA

收稿日期: 2014-10-09 修回日期: 2014-12-24 出版日期: 2015-08-05

PACS: S 965.325

基金资助:

国家高技术研究发展计划(863计划)项目(2012AA10A413-5)

通信作者: 施兆鸿, (1958-), 男, 研究员, 从事海水鱼类育种及增殖研究。E-mail: shizh@eastfishery.ac.cn

作者简介: 张晨捷, (1989-), 男, 研究实习生, 从事海水鱼类养殖及生理生态学研究。E-mail: zhangchenjie1989@sina.com

引用本文:

张晨捷 张艳亮 高权新 彭士明 施兆鸿. 低盐胁迫对黄姑鱼幼鱼肝脏抗氧化功能的影响[J]. 南方水产科学, 2015, 11(4): 59-64. ZHANG Chenjie, ZHANG Yanliang, GAO Quanxin, PENG Shiming, SHI Zhaohong. Effect of low salinity stress on antioxidant function in liver of juvenile *Nibea albiflora*. South China Fisheries Science, 2015, 11(4): 59-64.

链接本文:

<http://www.schinafish.cn/CN/10.3969/j.issn.2095-0780.2015.04.009> 或 <http://www.schinafish.cn/CN/Y2015/V11/I4/59>

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

