南方水产科学 » 2014, Vol. 10 » Issue (4): 27-33 DOI: 10.3969/j.issn.2095-0780.2014.04.005

广东沿海3个斜带石斑鱼养殖群体的RAPD和线粒体Cyt b基因序列变异分析

陈兴汉[1,2], 郭梁[2], 李明明[2], 蒙子宁[2], 林浩然[2]

1. 阳江职业技术学院生命科学与技术系，广东 阳江 529566；2. 中山大学水生经济动物研究所暨广东省水生经济动物良种繁育重点实验室，广东 广州 510275

Analysis of RAPD and mitochondrial Cyt *b* gene sequences of three cultured stocks of *Epinephelus coioides* from Guangdong Province

CHEN Xinghan[1,2], GUO Liang[2], LI Mingming[2], MENG Zining[2], LIN Haoran[2]

1. Life Science and Technology Department, Yangjiang Vocational and Technical College, Yangjiang 529566, China；2. Institute of Aquatic Economic Animals and Guangdong Provincial Key Lab. for Aquatic Economic Animals, Sun Yat-Sen University, Guangzhou 510275, China

摘要 图/表 参考文献(0) 相关文章 (1)

全文: PDF (929 KB) HTML (0)
输出: BibTeX | EndNote (RIS)

摘要

斜带石斑鱼（*Epinephelus coioides*）为中国南方重要的海水增养殖经济鱼类，但过度捕捞和人工养殖的快速扩张，导致了其自然资源衰退和遗传多样性降低。文章采用随机扩增多态DNA（RAPD）和线粒体细胞色素*b*（Cyt *b*）基因序列分析方法，对惠州、深圳和湛江3个斜带石斑鱼养殖群体进行了遗传多样性状况和遗传差异的研究。结果表明：1）相比较于线粒体Cyt *b*基因序列分析，RAPD技术在研究斜带石斑鱼种内遗传变异方面具有更高的灵敏性和多态性；2）相比较于其服已经报道的石斑鱼类，斜带石斑鱼的遗传多样性较低，RAPD检测到的多态位点百分率（*CP*）为40.57%，究其原因，可能是受过度捕捞和人工养殖的影响；3）RAPD检测到的群体间遗传相似度（*I*）高达0.967 1~0.980 8，而Cyt b的核苷酸多样性仅为0.003 8；斜带石斑鱼养殖群体间的遗传差异显然很小，具有相似的遗传背景。文章还探讨了斜带石斑鱼线粒体Cyt b基因的特点，并针对目前斜带石斑鱼的养殖现状提出了相应保护遗传多样性的对策与建议。

关键词： 斜带石斑鱼， RAPD，线粒体Cyt *b*， 遗传变异

Abstract：

Epinephelus coioides is an important mariculture commercial fish in South China. In recent years, due to excessive fishing and rapid expansion of artificial breeding, the natural resources of *E.coioides* have declined and their genetic diversity has decreased. We applied random amplified polymorphic DNA (RAPD) and mitochondrial cytochrome *b* (Cyt *b*) gene sequences analyzing technique to three cultured stocks of *E.coioides* sampled from Huizhou, Shenzhen and Zhanjiang. The main results show that: 1) RAPD analysis might be more sensitive than mitochondrial Cyt *b* gene sequence to reveal genetic variations of *E.coioides*; 2) Compared with the other reported groupers, the genetic diversity of *E.coioides* might be affected by overfishing and aquaculture. The percentage of polymorphic loci was 40.57% according to RAPD analysis; 3) The genetic identity was 0.967 1~0.980 8 according to RAPD analysis and the nucleotide diversity of Cyt *b* was only 0.003 8. Small differentiation and similar genetic background were observed among *E.coioides* stocks. Furthermore, we explored the characteristics of mitochondrial Cyt *b* of *E.coioides* and put forward some suggestions and countermeasures for protecting genetic diversity of *E.coioides*.

Key words： *Epinephelus coioides* RAPD mitochochondrial Cyt *b* genetic variation

收稿日期: 2014-01-23 **修回日期:** 2014-03-27 **出版日期:** 2014-08-05

PACS: S 965.334

基金资助:

公益性行业（农业）科研专项（201403008）；广东省教育科研"十二五"规划资助项目（2012JK312）

通信作者: 蒙子宁(1975-)，男，副教授，博士，从事海洋生物生态遗传学研究。E-mail:mengzn@mail.sysu.edu.cn

作者简介: 陈兴汉(1978-)，男，讲师，硕士，从事水产经济动物繁育及分子生物学研究。E-mail:cxhsysu@126.com

引用本文:

陈兴汉 郭梁 李明明 蒙子宁 林浩然. 广东沿海3个斜带石斑鱼养殖群体的RAPD和线粒体Cyt b基因序列变异分析[J]. 南方水产科学, 2014, 10(4): 27-33. CHEN Xinghan，GUO Liang，LI Mingming，MENG Zining，LIN Haoran. Analysis of RAPD and mitochondrial Cyt *b* gene sequences of three cultured stocks of *Epinephelus coioides* from Guangdong Province. South China Fisheries Science, 2014, 10(4): 27-33.

链接本文:

http://www.schinafish.cn/CN/10.3969/j.issn.2095-0780.2014.04.005 **或** http://www.schinafish.cn/CN/Y2014/V10/I4/27