

2018年12月19日 星期三

[首页](#)[期刊介绍](#)[编委会](#)[编辑部](#)[投稿须知](#)[英文刊IFA](#)[会议信息](#)[联系我们](#)[留言与回复](#)

动物营养学报 2011, Vol. 23 Issue (03) :506-513 DOI: 10.3969/j.issn.1006-267x.2011.03.023

[研究简报](#)[最新目录](#) | [下期目录](#) | [过刊浏览](#) | [高级检索](#)[<< Previous Articles](#) | [Next Articles >>](#)

## 水溶氧对三疣梭子蟹(*crab Portunus trituberculatus*, Miers, 1876)生理应答的影响 (英文)

刘重斌, 肖敏, 冯彦红, 王瑞, 卢波

(温州医学院基础医学院低氧生理研究所, 温州 325035)

### Effect of Dissolved Oxygen Level on Physiological Responses in *Portunus trituberculatus* (Miers, 1876)

LIU Chongbin, XIAO Min, FENG Yanhong, WANG Rui, LU Bo

(Institute of Hypoxia Physiology, College of Basic Medicine, Wenzhou Medical College, Wenzhou 325035, China)

[摘要](#)[参考文献](#)[相关文章](#)**Download:** PDF (1124KB) [HTML](#) (0KB) **Export:** BibTeX or EndNote (RIS) **Supporting Info**

**摘要** 本研究旨在探究不同水溶氧水平对三疣梭子蟹生理应答的影响。将50只成体三疣梭子蟹 (*Crab Portunus trituberculatus*) 分别饲养在不同水溶氧水平 (1、2、4、8、12 mg/L) 的密封水槽中, 10 d后测定其耗氧率, 同时比较血液中蛋白质、氧合血蓝蛋白、血细胞含量; 测定消化腺代谢产物 (糖原、蛋白质、葡萄糖、胆固醇、酰基甘油、乳酸) 含量; 比较消化酶活性及乳酸脱氢酶活性的差异。结果显示: 三疣梭子蟹生存关键的溶氧水平为2~4 mg/L; 血液中蛋白质和氧合血蓝蛋白含量与耗氧率一致; 消化腺代谢产物糖原和蛋白质含量不随溶氧水平的变化而变化 ( $P>0.05$ ), 但葡萄糖、胆固醇和酰基甘油含量随溶氧水平降低而呈直线下降; 水溶氧对消化酶活性影响不大 ( $P>0.05$ ), 但乳酸脱氢酶活性和乳酸含量却随溶氧水平降低而显著增加 ( $P<0.05$ ); 较低的水溶氧还通过明显降低血细胞含量 ( $P<0.05$ ) 来影响三疣梭子蟹的免疫功能。研究表明: 三疣梭子蟹可通过改变血液中氧合血蓝蛋白含量、某些消化腺代谢产物含量以及厌氧呼吸等生理机制来适应较低的水溶氧生态环境。

**关键词:** 氧压力;水溶氧;营养代谢;三疣梭子蟹

**Abstract:** The aim of the present study was to evaluate the effects of dissolved oxygen levels on physiological responses including respiratory metabolism, nutritional physiology, and immunological condition of *Portunus trituberculatus*. Fifty adult crabs were exposed to different dissolved oxygen levels (1, 2, 4, 8 and 12 mg/L water) for 10 days, and then the oxygen consumption rate, the contents of proteins, oxyhemocyanin (Oxy-Hc) and hemocytes in blood, the metabolites of digestive gland (glycogen, protein, glucose, cholesterol, acylglycerol and lactate), the activities of digestive enzymes and lactate dehydrogenase (LDH) were determined. The results showed that the critical levels of dissolved oxygen for *Portunus trituberculatus* were between 2 and 4 mg/L. The contents of proteins and Oxy-Hc followed a similar pattern with the oxygen consumption rate. The contents of glycogen and proteins of digestive gland, and the activities of total proteases, trypsin and chymotrypsin were not affected by the environmental dissolved oxygen ( $P>0.05$ ), but the contents of glucose, cholesterol and acylglycerol were decreased linearly with the decrease of available oxygen in water. The gill LDH activity and the content of lactate in digestive gland rose sharply as the level of dissolved oxygen decreased ( $P<0.05$ ). Low levels of dissolved oxygen also affected the immune system through reducing the content of hemocytes ( $P<0.05$ ). *Portunus trituberculatus* shows a moderate tolerance to low oxygen availability by modifying the contents of Oxy-Hc and some metabolites of digestive gland, and by activating the anaerobic metabolism as well.

**Keywords:** oxygen tension; dissolved oxygen; nutritional metabolism; crab *Portunus trituberculatus*

#### 引用本文:

. 水溶氧对三疣梭子蟹(*crab Portunus trituberculatus*, Miers, 1876)生理应答的影响 (英文) [J]. 动物营养学报, 2011,V23(03): 506-513. Effects of Water Dissolved Oxygen Level on Physiological Responses in *Portunus trituberculatus* (Miers, 1876)[J]. Chinese Journal of Animal Nutrition, 2011,V23(03): 506-513.

#### 链接本文:

[http://211.154.163.124/Jweb\\_dwyy/CN/10.3969/j.issn.1006-267x.2011.03.023](http://211.154.163.124/Jweb_dwyy/CN/10.3969/j.issn.1006-267x.2011.03.023) 或[http://211.154.163.124/Jweb\\_dwyy/CN/Y2011/V23/I03/506](http://211.154.163.124/Jweb_dwyy/CN/Y2011/V23/I03/506)

没有本文参考文献

没有找到本文相关文章

Copyright 2010 by 动物营养学报