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PII: S1095-6433(18)30065-5
DOI: doi:10.1016/j.cbpa.2018.04.016
Reference: CBA 10331

To appear in:

Received date: 4 January 2018
Revised date: 19 April 2018
Accepted date: 27 April 2018

Please cite this article as: Zi-Ming Liu, Xian-Long Zhu, Jun Lu, Wan-Jun Cai, Ya-Ping Ye, Yao-Ping Lv , Effect of high temperature stress on heat shock protein expression and antioxidant enzyme activity of two morphs of the mud crab Scylla paramamosain. The address for the corresponding author was captured as affiliation for all authors. Please check if appropriate. Cba(2018), doi:10.1016/j.cbpa.2018.04.016

Effect of high temperature stress on heat shock protein expression and antioxidant enzyme activity of two morphs of the mud crab *Scylla paramamosain*

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A B S T R A C T

The present study aimed to investigate the effect rapid temperature change from moderate temperature to high temperatures on heat shock protein (HSP) expression and antioxidant enzyme activities in mud crabs. Two mud crabs, one with one spine on the outer margin of the carpus of cheliped (Sp1) and another with two spines (Sp2), were acclimated at 25°C and then transferred to a 33°C environment, and HSP expression and antioxidant enzyme activity were assessed. HSP70 and HSP60 were markedly up-regulated in the gills and hepatopancreas of