

Seasonal variations of ATPase activity and antioxidant defenses in gills of the mud crab *Scylla serrata* (Crustacea, Decapoda)

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Abstract

The seasonal variations of ATPase activity and antioxidant defenses in gills of the mud crab *Scylla serrata* were investigated. The activity of ATPase and the levels of superoxide dismutase (SOD), catalase (CAT), and glutathione peroxidase (GPx) were measured in the gills of *S. serrata* collected from different months (February, April, June, August, October, and December) in the Yellow Sea. The activity of ATPase and the levels of SOD, CAT, and GPx were significantly higher in the gills of *S. serrata* collected in February than in those collected in other months (2.22 vs. 1.10, 11.0 vs. 0.2, 20.1 vs. 1.0, and 20.1 vs. 1.0, respectively, $P < 0.05$). The activity of ATPase and the levels of SOD, CAT, and GPx were significantly higher in the gills of *S. serrata* collected in February than in those collected in other months (2.22 vs. 1.10, 11.0 vs. 0.2, 20.1 vs. 1.0, and 20.1 vs. 1.0, respectively, $P < 0.05$). The activity of ATPase and the levels of SOD, CAT, and GPx were significantly higher in the gills of *S. serrata* collected in February than in those collected in other months (2.22 vs. 1.10, 11.0 vs. 0.2, 20.1 vs. 1.0, and 20.1 vs. 1.0, respectively, $P < 0.05$).

The activity of ATPase and the levels of SOD, CAT, and GPx were significantly higher in the gills of *S. serrata* collected in February than in those collected in other months ($P < 0.01$). The activity of ATPase and the levels of SOD, CAT, and GPx were significantly higher in the gills of *S. serrata* collected in February than in those collected in other months ($P < 0.01$). The activity of ATPase and the levels of SOD, CAT, and GPx were significantly higher in the gills of *S. serrata* collected in February than in those collected in other months ($P < 0.01$).

Abbreviations

ATPase: ATPase activity; SOD: superoxide dismutase; CAT: catalase; GPx: glutathione peroxidase; SOD: superoxide dismutase; CAT: catalase; GPx: glutathione peroxidase.

Introduction

The activity of ATPase and the levels of SOD, CAT, and GPx were significantly higher in the gills of *S. serrata* collected in February than in those collected in other months (Kong et al., 2006). The activity of ATPase and the levels of SOD, CAT, and GPx were significantly higher in the gills of *S. serrata* collected in February than in those collected in other months (Kong et al., 2006).

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Materials and methods

The study was conducted in the laboratory of the Department of Microbiology, Faculty of Medicine, Ain Shams University, Cairo, Egypt. The study was approved by the Ethical Committee of the Faculty of Medicine, Ain Shams University. The study was conducted in the laboratory of the Department of Microbiology, Faculty of Medicine, Ain Shams University, Cairo, Egypt. The study was approved by the Ethical Committee of the Faculty of Medicine, Ain Shams University. The study was conducted in the laboratory of the Department of Microbiology, Faculty of Medicine, Ain Shams University, Cairo, Egypt. The study was approved by the Ethical Committee of the Faculty of Medicine, Ain Shams University.

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Evaluation of the effect of the study

The study was conducted in the laboratory of the Department of Microbiology, Faculty of Medicine, Ain Shams University, Cairo, Egypt. The study was approved by the Ethical Committee of the Faculty of Medicine, Ain Shams University. The study was conducted in the laboratory of the Department of Microbiology, Faculty of Medicine, Ain Shams University, Cairo, Egypt. The study was approved by the Ethical Committee of the Faculty of Medicine, Ain Shams University.

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Table 1 ... ()

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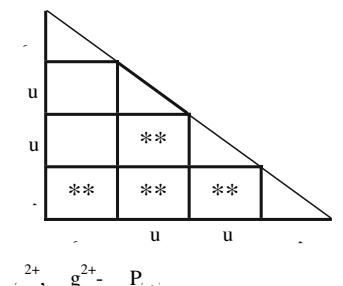
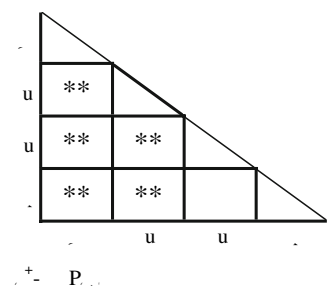
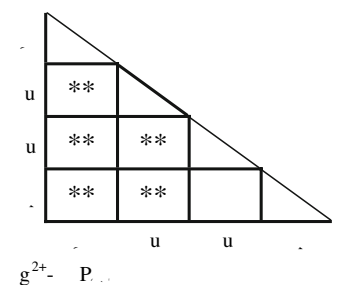
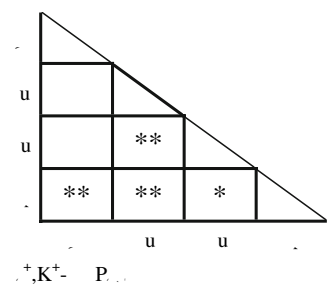
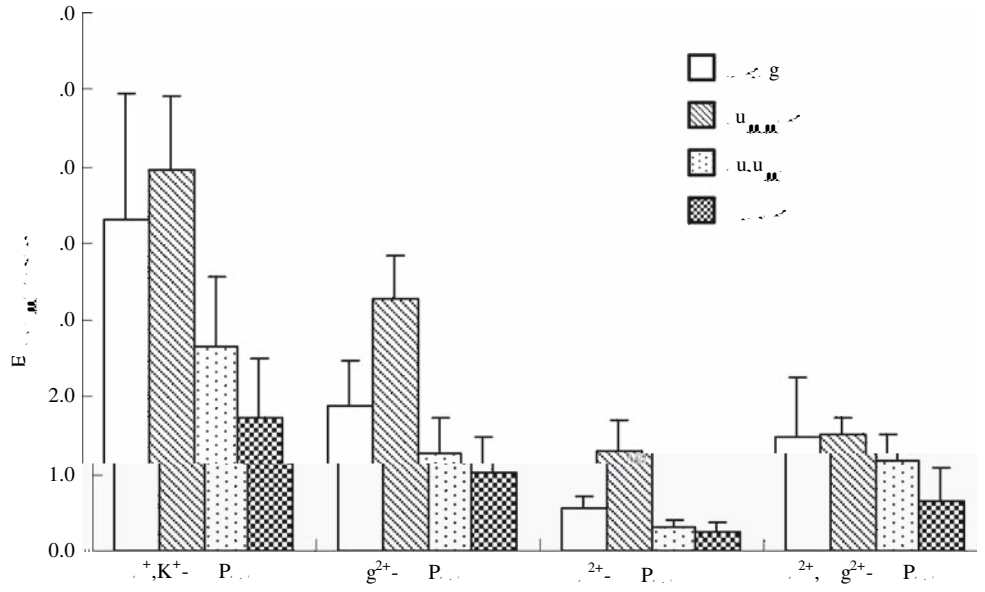
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1 ... f ...
 fi ... 2 2 ...
 1 ...
 ... (... 1 ...) ...
 ... (...) (... E ...) ...
 ... < 0. ...
 ...
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 ... E E 200 ...
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Results

ff ...
 ... (...) ...
 ... +, K+ ... S 0. ...
 ... ff ...
 ... (...) (< 0.01 ...
 < 0.0) ...
 ... (... S 0. ...) ...
 ... fi ...

Fig. 1 ...
 +, K+ ...
 2+- ...
 ...
 ...
 * ...
 (< 0.0). ** ...
 (< 0.01). ...
 ...



... (< 0.01). ²⁺ ...
 ... (1.2 § 0.2 ... / ...) ... (< 0.01),
 ... (0.2 § 0.12 ... / ...) ...
 ... (< 0.01). ²⁺ ...
 ... (1.2 § 0.21 ... / ...) ...
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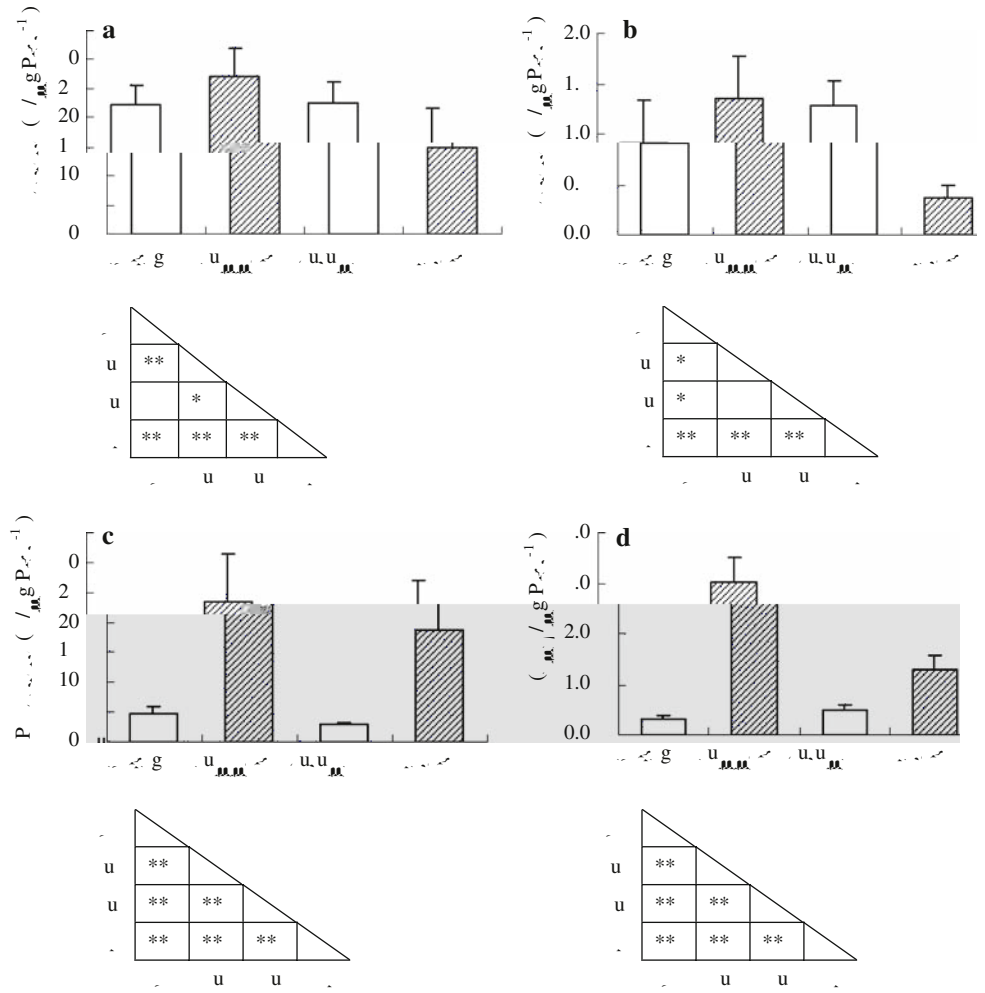
... (< 0.01).
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Discussion

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Fig. 2 ...

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(... 200). ... K^+ , 2^+

