Study reveals network of energy reallocation in Litopenaeus vannamei responsive to heat-stress
9 May 2022, by Li Yuan

The study was published in *Ecotoxicology and Environmental Safety* on May 5.

Previous studies about heat stress were limited to single tissues or only a few indicators. However, the spatial network of tissue cooperation and the relationship with energy in response to heat stress remain unclear.

In this study, the researchers conducted a comparative and sound transcriptomic analysis on three tissues of shrimp under heat stress, including hepatopancreas, gills, and muscle. They found that energy-related genes were the main change genes, which inferred that energy flux might be reallocated among different tissues under heat stress.

"Understanding the cooperation of various tissues of animals in response to heat stress is the basis for clarifying the regulation mechanism of different species under heat stress," said Dr. Zhang Xiaoxi, first author of the study.

"We find that different tissues may cooperate with each other simultaneously via energy reallocation in response to heat stress. Less energy was channeled into protein turnover in gill and hepatopancreas for minimally life sustaining, and more energy was required for muscle to get out of adverse circumstances," said Prof. Zhang.

"This work not only provides a comprehensive understanding of the molecular mechanism of L. vannamei in response to high temperature, but also lays the foundation of mining thermotolerance genes and proposing effective strategies to cope with the high-temperature environment," said Prof. Li.

More information: Xiaoxi Zhang et al, Comparative transcriptomic analysis unveils a...

Provided by Chinese Academy of Sciences


*This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.*