

Mycotoxin-induced Transcriptomic Changes in Hepatopancreas of Black Tiger Shrimp (*Penaeus monodon*)

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ABSTRACT:

The black tiger shrimp (*Penaeus monodon*) is one of the major species farmed in Southeast Asia due to its high market value. The growing use of plant-based ingredients in aquaculture feeds increases the risk of mycotoxin contamination, as these components are vulnerable to colonization by mycotoxigenic fungi during storage, which may negatively impact shrimp health. Here, we examined the transcriptomic expression profiles in the hepatopancreas of *P. monodon* fed diets contaminated with mycotoxins produced by *Alternaria* and *Fusarium*. In shrimp exposed to mycotoxins, genes involved in potassium/chloride transport were downregulated, while those related to glucose transport were upregulated, suggesting a disruption in ion homeostasis and an increased energy demand. Moreover, cuticle proteins and U-scoloptoxin(01)-Cw1a involved in molting cycle were significantly decreased in the hepatopancreas. This downregulation in mycotoxin-exposed shrimp might contribute to molting failure, developmental delays, and increased mortality observed in this study. These findings provide better understanding of the molecular and physiological effects of mycotoxin exposure in shrimp and support efforts to reduce their negative impacts on shrimp health and productivity.

KEYWORDS:

Mycotoxin, black tiger shrimp, *Penaeus monodon*, transcriptome, hepatopancreas