Acute and subchronic effects on immune responses of carp (Cyprinus carpio L.) after exposure to deoxynivalenol (DON) in feed

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The mycotoxin deoxynivalenol (DON) has beenshown to regularly occur at relevant concentrations in feed designedfor aquaculture use, but little is known about the consequencesof its presence on the organisms that consume theDON-contaminated feed. Previous studies indicated a downregulationof pro-inflammatory responses in carp (Cyprinuscarpio L.) after 4 weeks of feeding DON. The present studyexamined the time course of innate immune responses of carpto orally administered DON. Changes in mRNA levels ofimmune genes in different organs (head kidney, trunk kidney,spleen, liver, and intestine) were observed indicating immunemodulatingproperties of DON. The immune-modulatory effects during the acute phase of DON exposure were characterizedby the activation of both pro- and anti-inflammatorycytokines and enzymes in carp. The subchronic responses toDON were characterized by activation of arginases culminatingin increased arginase activity in head kidney leukocytesafter 26 days of DON treatment. These results suggest profoundeffects of this mycotoxin on fish in aquaculture.
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