Differential modulation of immune functions by food borne mycotoxins

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Mycotoxins are structurally diverse toxic secondary metabolites produced by the organisms of the Fungus kingdom. Citrinin (CTN) was first isolated as a secondary metabolite of Penicillium citrinum and can cause mycotoxic nephropathy, cytotoxicity and genotoxicity. Deoxynivalenol (DON) is a secondary metabolite produced by Fusarium fungi and a contaminate in wheat, barley and corn worldwide. DON has been implicated in inducing dysregulation of the immune response and is able to either enhance or suppress resistance to pathogens. Zearalenone (ZEN) is a non-steroidal estrogenic mycotoxin produced by various Fusarium species. ZEN is mainly known as a hormonal disrupter due to its estrogenic activities and consequent toxicity for reproduction. ZEN also displays hepatotoxicity, immunotoxicity and nephrotoxicity. Due to the widespread presence of fungi in the environment, CTN, DON and ZEN are regarded as an unavoidable contaminant in food products. However, the immunomodulatory effects of CTN, DON and ZEN in mice have not been yet fully elucidated. In the present study, we have investigated the immune modulatory effects of CTN, DON and ZEN in the female BALB/c mice.

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