

## Evaluation of fermented whey and pumpkin as functional ingredients against aflatoxin B1 and ochratoxin A oral toxicity in rat duodenum

*Wednesday, 29 January 2025 22:55 (5 minutes)*

Aflatoxin B1 (AFB1) and ochratoxin A (OTA) are potent mycotoxins known for their significant health risks. To mitigate their toxic effects, bioactive ingredients such as fermented whey (FW) and pumpkin (P) have been studied for their antioxidant and immunoregulatory properties. This research explored the protective potential of FW and P against AFB1 and OTA-induced toxicity in duodenal tissue, focusing on key genes involved in apoptosis, antioxidant activity, and intestinal integrity. The findings suggest that FW and P effectively modulate molecular pathways involved in the response to these mycotoxins, offering a protective effect. Importantly, these benefits were observed to be independent of the sex of the subjects, underlining their broad applicability as functional ingredients for preventing mycotoxin-induced damage.

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**Session Classification:** Ensuring safety, nutrition, and sustainability

**Track Classification:** General sessions: Ensuring safety, nutrition, and sustainability