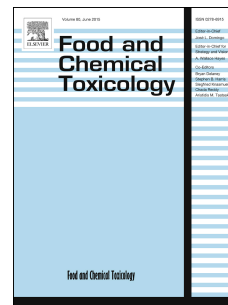


# Accepted Manuscript

Comparative *in vitro* cytotoxicity of the emerging *Fusarium* mycotoxins beauvericin and enniatins to porcine intestinal epithelial cells

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PII: S0278-6915(18)30697-5

DOI: [10.1016/j.fct.2018.09.053](https://doi.org/10.1016/j.fct.2018.09.053)

Reference: FCT 10079

To appear in: *Food and Chemical Toxicology*

Received Date: 1 June 2018

Revised Date: 21 September 2018

Accepted Date: 23 September 2018

Please cite this article as: Fraeyman, S., Meyer, E., Devreese, M., Antonissen, G., Demeyere, K., Haesebrouck, F., Croubels, S., Comparative *in vitro* cytotoxicity of the emerging *Fusarium* mycotoxins beauvericin and enniatins to porcine intestinal epithelial cells, *Food and Chemical Toxicology* (2018), doi: <https://doi.org/10.1016/j.fct.2018.09.053>.

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## Comparative *in vitro* cytotoxicity of the emerging *Fusarium* mycotoxins beauvericin and enniatins to porcine intestinal epithelial cells

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### **Abstract**

The emerging *Fusarium* mycotoxins beauvericin (BEA) and enniatin (ENN) A, ENN A1, ENN B and ENN B1 gain increasing interest due to their highly prevalent contamination of cereals and cereal products. After oral intake, the gastro-intestinal tract is the first possible site of interaction. In the present *in vitro* study, the relative cytotoxicity of these mycotoxins towards proliferating and differentiated intestinal porcine epithelial cells of the jejunum (IPEC-J2) was evaluated using flow cytometric viability analysis. IPEC-J2 cells showed the highest sensitivity to BEA and ENN A. In proliferating cells, incubation for 24h with 10  $\mu$ M BEA caused complete disruption, while the viability percentage declined to 32% after 24h of incubation with 10  $\mu$ M ENN A. ENN A1 and ENN B1 were less cytotoxic with 87% and 93% viable cells after 24h of incubation with 10  $\mu$ M ENN A1 and B1, respectively. ENN B was the least cytotoxic since incubation at concentrations up to 100  $\mu$ M resulted in 83% viable proliferating cells. The same trend was observed for differentiated cells. The limited *in vitro* cytotoxic effect of ENN B on Annexin-V-FITC: Annexin-V-fluorescein isothiocyanate, BEA: beauvericin, BrdU: 5-bromo-2-deoxyuridine, Caco-2: human colon adenocarcinoma, ENN: enniatin, H295R: human adrenocortical carcinoma, IPEC-J2: intestinal porcine epithelial cells of the jejunum, LOD: limit of detection, log P: logarithm of the partition coefficient, LPO: lipid peroxidation, MTT: methylthiazoltetrazolium salt, NR: neutral red, PI: propidium iodide, ROS: reactive oxygen species, TEER: transepithelial electrical resistance

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