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Stability of masked mycotoxins in the human gut

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Cereal grains are commonly contaminated with a range of mycotoxins and their plant-derived masked metabolites. These conjugated metabolites are present in food and their contribution to toxicity either directly or indirectly through release of the parent mycotoxins is unknown. This study aims to assess the fate of common masked mycotoxins under conditions prevailing in the gut. The work assesses the metabolism and transport of glucoside metabolites of common trichothecenes and zearalenone compounds in the human gut in vitro. All masked mycotoxins were stable under conditions prevailing in the upper GI tract and were not absorbed intact through epithelial monolayers. Unabsorbed mycotoxins are likely to be delivered to the colon where they will be subject to microbial activity. We found that human gut microbiota efficiently hydrolyzed all masked mycotoxins. Trichothecenes were fully released as parent mycotoxins whereas zearalenone compounds were fully hydrolyzed and then further metabolized to unknown metabolites. Our results demonstrate that masked mycotoxins will reach the colon intact to be released as parent mycotoxins by gut microbiota and are therefore, contribute to mycotoxin exposure in humans. Furthermore, masked zearalenone compounds are metabolized by gut microbiota and the identity and toxicity of metabolites are yet unknown.

Biography

Silvia W Gratz holds an MSc in Human Nutrition (University Vienna, Austria) and a PhD in Food Toxicology (University of Kuopio, Finland). She has been working as a Research Fellow at Rowett Institute of Nutrition and Health since 2007. Her research work focuses on "The role of diet in gut health, intestinal toxicity and gut microbiology". She has published 15 original articles as well as four reviews and three book chapters and acts as Editorial Board Member of *Frontiers in Predictive Toxicology.*

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