Food contaminants under the spotlight

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Credit: University of Aberdeen

Scientists from the University of Aberdeen Rowett Institute have been studying the fate of food contaminants in the human digestive system , of which little research has been previously conducted.

Mycotoxins are fungal toxins which can be present in cereal crops, such as wheat, oats and barley. Plants bind these mycotoxins to sugars and it is unknown whether these bound or 'masked' mycotoxins will be released in the body after consuming contaminated food.

Due to their high toxicity, the European Commission has set strict maximum levels for some mycotoxins in food, however, there are currently no maximum levels for masked mycotoxins.

The team, have discovered that these masked mycotoxins remain stable in the small intestine however, once they reach the large intestine they are broken down by human gut bacteria and these mycotoxins are rapidly released, which could add to the overall mycotoxin exposure. The research was carried out using an in vitro artificial digestion system to mimic the conditions that prevail in the human small and large intestine.

The study was conducted in collaboration with Fera Science Ltd. and was funded by the Food Standards Agency and the Scottish Government.

Dr Gratz said: "This study has shown us that more investigations need to be conducted into the effects of these masked mycotoxins as they could pose an additional risk to consumers. Future work will assess the exposure of consumers to these masked mycotoxins and their release and uptake from the large intestine.

"The findings from this study have enabled the Food Standards Agency to have a better understanding of the significance of masked mycotoxins in the diet and their fate in the human gut. The results may be used in future consideration of risks from their presence in food."

More information: Silvia W. Gratz et al. Masked trichothecene and zearalenone mycotoxins withstand digestion and absorption in the upper GI tract but are efficiently hydrolyzed by human gut microbiota in vitro, *Molecular Nutrition & Food Research* (2017). DOI: 10.1002/mnfr.201600680