OMICS Group
Conferences
Accelerating Scientific Discovery

2nd International Summit on
Toxicology

October 07-09, 2013 Hampton Inn Tropicana, Las Vegas, NV, USA

Exposure assessment to fumonisin B1 by LC/MS determination of fumonisin FB1 levels in human hair from residents of Pirassununga, Brazil

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Fumonisin B_1 (FB_1) is a common contaminant of corn products and is produced by fungi of the genus *Fusarium*. To date, only one research group has utilized the analysis of fumonisin B_1 in hair as a biomarker for the assessment of FB_1 exposure in animal models and in humans. It provides an important link in translating information to evaluate past fumonisin exposure. In the present study, an analytical method has been validated and tested for its applicability to measure FB_1 in hair. The hair samples were extracted with methanol, filtered, and the filtrate passed through immunoafinity columns followed by LC/MS analysis. The quantification limit of the method was 0.5 ng FB_1/g hair. A standard curve was prepared with four concentrations of FB_1 ranging from 1 to 20 ng/mL with a correlation coefficient (r^2) of 0.997. As part of the validation, hair samples were collected from two groups of swine, one control group containing 1 mg FB_1/kg and another group was fed 15 mg FB_1/kg for 6 weeks. Hair samples of control group contained 4.7 ng FB_1/g and fumonisin treated group contained 32.9 ng FB_1/g. Human hair samples were collected individually from residents in Pirassununga, São Paulo State, Brazil. Initial results demonstrated that 25% of human hair samples were positive for FB_1 at levels 5 to 12.7 ng/g hair. These results suggest that there is an exposure to FB_1 from corn products.

Biography

Keliani Bordin holds a degree in Food Engineering from the University of Santa Catarina State, Brazil (2009). She is a PhD student at the University of São Paulo since 2010 evaluating biomarkers of fumonisins in human. She is currently an intern in the Veterinary Medical Diagnostic Laboratory at the University of Missouri, in Columbia, USA.

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J Clinic Toxicol 2013
ISSN: 2161-0495, JCT an open access journal

Toxicology-2013
October 07-09, 2013

Volume 3 Issue 5

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