

## **Mycotoxins production by *Fusarium* and *Aspergillus* species isolated from cornmeal**

### **ABSTRACT**

Corn is a vital food source for human consumption, animal feed as well as industrial processing. However, corn faces repeated spoilage and contamination by a huge range of fungi especially by *Fusarium* and *Aspergillus* species. These fungi are known of producing mycotoxins such as fumonisins (FBs), moniliformin (MON), zearalenone (ZEA), beauvericin (BEA) and aflatoxins (AFs). The main objective of this study was to quantify the mycotoxins produced by both fungi associated with cornmeal in Malaysia. The extracted mycotoxins were qualitatively analyzed using *A. salina* bioassay, and quantitatively using ultra-fast Performance Liquid chromatography (uFLC). Three hundred and fourteen isolates of microfungi were obtained, 90.5% isolates belonged to *Aspergillus* species, namely *A. flavus* (76.8%), *A. niger* (7.6%), *A. nidulans* (4.5%) and *A. fumigatus* (1.6%). Another 9.6% isolates were *Fusarium* species, identified as *F. verticillioides* (4.5%), *F. semitectum* (3.2%) and *F. proliferatum* (1.9%). As for the mycotoxin analysis, out of 40 isolates of *Aspergillus*, 29 isolates produced AFB<sub>1</sub> and only two isolates produced AFB<sub>2</sub>. Fifteen out of 16 *Fusarium* isolates produced MON, 12 isolates produced BEA and all isolates produced FB<sub>b</sub> but none of them produced ZEA. The analysis of *A. salina* revealed that all the five mycotoxins extracts were toxic to the brine shrimp despite the concentration of the mycotoxins.

**Keyword:** *Fusarium*; *Aspergillus*; Mycotoxins; Aflatoxins; Cornmeal