

**Title** Occurrence of aflatoxin B<sub>1</sub> and ochratoxin A in Lebanese cultivated wheat  
**Author** Karine Joubrane, André EL Khoury, Roger Lteif, Toufic Rizk, Mireille Kallassy, Christo Hilan and Richard Maroun  
**Citation** Mycotoxin Research, 27, Number 4, 249-257, 2011  
**Keywords** Aflatoxin B<sub>1</sub>; *Aspergillus*; Lebanon; Ochratoxin A; *Penicillium*; Wheat

### Abstract

An extensive survey of filamentous fungi isolated from wheat grown and consumed in Lebanon and their capacity to produce aflatoxin B<sub>1</sub> (AFB<sub>1</sub>) and ochratoxin A (OTA) was conducted to assess fungi potential for producing these toxins in wheat. From the 468 samples of wheat kernel, collected at preharvest stage from different locations during 2008 and 2009 cultivation seasons, 3,260 fungi strains were isolated with 49.4% belonging to *Penicillium* spp. and 31.2% belonging to *Aspergillus* spp. *Penicillium* spp. was detected on wheat samples with a high amount of *P. verrucosum* (37.0%). Among the different *Aspergillus* spp. isolated, *A. niger* aggregate was predominant and constituted 37.3% whereas the isolation rate of *A. flavus* and *A. ochraceus* was 32.2 and 25.6%, respectively. The ability to produce OTA and AFB<sub>1</sub> by isolates belonging to *Aspergillus* spp. and *Penicillium* spp. was analyzed by high performance liquid chromatography with fluorescence detector (HPLC-FLD). It was found that 57.0% of *Penicillium* spp. and 80% of *A. ochraceus* isolates tested produced OTA, respectively, at maximum concentrations of 53 and 65 µg/g CYA. As for the aflatoxinogenic ability, 45.3% of *A. flavus* produced AFB<sub>1</sub>, with maximum concentration of 40 µg/g CYA. A total of 156 wheat samples were analyzed for the levels of OTA and AFB<sub>1</sub> by HPLC-FLD. The results showed that 23.7% were contaminated with OTA, at a concentration higher than 3 µg/kg and 35.2% of these samples were contaminated with AFB<sub>1</sub> at concentration higher than 2 µg/kg. The risks originating from toxin levels in wheat produced in Lebanon should be monitored to prevent their harmful effects on public health.

<http://www.springerlink.com/content/g8182xj4q021t653/fulltext.pdf>