

**Title** Mycoflora and ochratoxin A producing strains of *Aspergillus* in Algerian wheat  
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### Abstract

Wheat is a basic staple food for very large segments of the population of Algeria. The aim of this study is to analyse ochratoxin A (OTA)-producing mould and OTA-contaminated wheat. To evaluate the mycoflora and the potential for OTA production by *Aspergillus* strains, a total of 85 samples of wheat destined for human consumption were collected from two regions in Algeria (Tizi Ouzou and Setif) during the following phases: preharvest, storage in silos, and after processing. The mean value counts of fungi ranged from 275 to 1277 CFU g<sup>-1</sup>. The dominant genus was *Aspergillus*, predominantly *A. flavus*, *A. niger* and *A. versicolor*. The other isolated species were *A. ochraceus*, *A. alliaceus*, *A. carbonarius*, *A. terreus*, *A. fumigatus*, *A. candidus* and *Aspergillus* spp. The occurrence and the levels of the genus *Penicillium*, *Fusarium*, *Alternaria* and *Mucor* were substantially lower than those of *Aspergillus*. The storage in silos shows high levels of *Aspergillus* (66 to 84%), especially *A. flavus*, but *A. niger* and other fungi were isolated at relatively low percentages. Equal distribution of the fungal contamination into the bran, flour and semolina fractions was observed from Flour Mill and Semolina Mill. The genus *Aspergillus* remained present at high levels at several phases of the production process. In addition, the ability to produce OTA by 135 isolates belonging to eleven species of *Aspergillus* and 23 isolates of *Penicillium* spp. was analyzed using fluorescent detection-based HPLC. Thus, it was found that 51 isolates (32.3%) were ochratoxigenic. All isolated strains of *A. ochraceus* (12) and *A. alliaceus* (6) produced OTA at concentrations ranging from 0.23 to 11.50 µg g<sup>-1</sup>. Most of the *A. carbonarius* strains (80%) were OTA producers (0.01 to 9.35 µg g<sup>-1</sup>), whereas *A. terreus* (50%), *A. niger* (28%), *A. fumigatus* (40%), *A. versicolor* (18%) and *Penicillium* spp. (21.7%) were low level producers (0.01 to 0.07 µg g<sup>-1</sup>). The concentration of OTA was determined in 30 samples of wheat. OTA was detected in 12 (40%) of the samples at levels ranging from 0.21 to 41.55 µg kg<sup>-1</sup>.