

Toxigenic Fungi and Ochratoxin A in Defective Coffee Beans

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SUMMARY

Defective coffee beans may contain toxins such as ochratoxin A (OTA) and other compounds which affect health. The objectives of the present study were to evaluate the mycobiota and the presence of ochratoxin A in the two principal coffee species: *Coffea arabica* (arabica) and *Coffea canephora* (robusta) in sound (good) and defective coffee beans. The coffee defects were separated manually into: black, immature, black green and sour beans. Samples were surface disinfected and plated directly onto Dichloran Glycerol agar, and incubated at 25 °C for 5 to 7 days. After incubation, plates were examined and all fungal species were first isolated onto malt extract agar plates. After growth, other culture media were used for identification. The coffee samples were analyzed for OTA. The toxin was detected and quantified by High Performance Liquid Chromatography (HPLC) equipment. The detection limit of the method was 0.2 µg/kg OTA. Robusta coffee presented more contamination by toxigenic fungi than arabica. *Aspergillus niger* was the most common potentially toxigenic species found, followed by *Aspergillus ochraceus* and *Aspergillus carbonarius*. However, OTA production varied from 6 to 20%; 66 to 100% and 60 to 100% in these species, respectively. The levels of ochratoxin A in arabica, residue of arabica, robusta and residue of robusta coffee were: < 0.2, 0.62, 1.56 and 9.01 µg/kg, respectively. The coffee beans with sour defect had a higher ochratoxin A concentration (11.35 µg/kg) than those with other defects.