

Ochratoxin A Reduction in Coffee Beans (*Coffea arabica*) Using a Spouted Bed Roaster

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SUMMARY

Conflicting data are found in literature with respect to the influence of roasting, grinding and beverage preparation on the destruction of ochratoxin A (OTA). In the present study, *Coffea arabica* was contaminated with spores of toxigenic *Aspergillus ochraceus*. After an incubation period, a sample was analyzed for OTA. Contaminated coffee was roasted in a vertical spouted bed roaster at four different temperatures (180 °C, 200 °C, 220 °C and 240 °C) and three different time periods (5, 8 and 12 min). After roasting, coffee beans were ground and OTA was analyzed. An average of 247 µg/kg of OTA was produced in coffee contaminated with *A. ochraceus*. Coffee treated with spouted bed roasting significantly reduced the OTA level. At 180 °C for 5, 8 and 12 min, OTA reduction was 8% (226 µg/kg); 42% (142 µg/kg) and 53% (114 µg/kg) respectively. At 200 °C for 5, 8 and 12 min, OTA reduction was 30% (173 µg/kg); 56% (108 µg/kg) and 66% (80 µg/kg) respectively. At 220 °C for 5, 8 and 12 min, OTA reduction was 46% (131 µg/kg), 76% (58 µg/kg) and 87% (31 µg/kg). Finally, at 240 °C for 5, 8 and 12 min, OTA reduction was 76% (57 µg/kg), 94% (14 µg/kg) and 98% (2 µg/kg) respectively. The results of this experiment showed that hot air spouted bed roasting can be an efficient tool for eliminating OTA in coffee.