

Development of Ochratoxin A (OTA) during Robusta (*Coffea canephora*) Coffee Cherry Drying, and Isolation of *Aspergillus carbonarius* Strains that Produce OTA *in vitro* on Coffee Cherries

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SUMMARY

The occurrence and formation of OTA in Robusta coffee was studied for five consecutive seasons under tropical conditions in Thailand. No evidence was found for the production of OTA in green coffee during controlled and ambient silo and bag storage conditions (Bucheli et al., 1998). In contrast, OTA formation was consistently formed during sun drying of coffee cherries in the pulp and parchment (husks) of the cherries (Bucheli et al., 2000). In replicated trials, dried coffee beans (green coffee) were shown to contain on average OTA concentrations that were approximately 100 times lower than those found in husks. OTA contamination of green coffee depended on cherry maturity, with green cherries being the least, and overripe cherries the most susceptible. Defects, and in particular the inclusion of husks, were the most important source of OTA contamination. OTA contamination occurred independently of whether cherries were placed during drying on concrete, bamboo tables or on the ground. Several strains of *Aspergillus carbonarius*, isolated from drying coffee cherries, were found to be potent OTA producers on γ -sterilized coffee cherries under laboratory conditions. A high relative humidity and a temperature of 25°C were optimal for OTA production, yielding up to 4800 $\mu\text{g/kg}$ of OTA after two weeks of incubation. Our results suggest that better raw material quality, an appropriate drying and hulling procedure combined with a reduction of green coffee defects can effectively contribute to the reduction of OTA in green coffee.