

Distribution of *Aspergillus ochraceus*, *A. niger* and *A. carbonarius* in Coffee in Four Regions of Brazil

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SUMMARY

This work investigated the distribution of ochratoxigenic fungi, and their ability to produce ochratoxin A (OTA), from coffee in four regions of Brazil. In total, 407 coffee samples were examined at different stages: mature (including immature) and overripe cherries from trees, overripe cherries from soil, and beans during drying and during storage on farm. Thirty six soil samples from coffee plantations were also analysed for the presence of ochratoxigenic fungi. The four regions studied were Alta Paulista (western area of São Paulo State), Sorocabana (southwest São Paulo State), Alta Mogiana (northeast São Paulo State) and Cerrado Mineiro (western area of Minas Gerais State), during the coffee harvest seasons of 1999 and 2000. Cherries and beans were surface disinfected with chlorine, plated on Dichloran 18% Glycerol Agar at 25°C for 5-7 days, and analysed for the presence of *Aspergillus ochraceus*, *A. carbonarius* and *A. niger*. The potential for OTA production by fungal isolates was tested by the agar plug technique and by thin layer chromatography. In total, 872 isolates of these three species were taken from coffee samples from the different regions during this study. Although *A. niger* was the most common species found (549 isolates), only 3% produced OTA. *A. ochraceus* was also commonly occurring (269 isolates), with 75% being capable of OTA production. *A. carbonarius* was found (54 isolates) in only one region, Alta Paulista, which is very hot, and only from beans in the drying yard or in storage. However 77% of the *A. carbonarius* isolates were capable of producing OTA. Mean infection rates for cherries from the tree were very low, but higher in fruit from the ground, from the drying yard and from storage, indicating infection by toxigenic species after removal from trees. Infection rates from drying and storage were very variable, and these were reflected in variability in OTA analyses. This variability indicated a lack of quality control during the drying process on some farms studied.