Abstract

A total of 408 Brazilian coffee samples was examined during the 1999 and 2000 coffee harvest seasons for the presence of ochratoxin A (OA) and fungi with the potential to produce it. Samples came from four regions: 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). Cherries and beans were examined at different stages: immature, mature and overripe cherries from trees, overripe cherries from the ground and beans during drying and storage on the farm. For mycological studies, the 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* and closely related species, *A. carbonarius* and *A. niger*. More than 800 isolates of fungi belonging to these species were identified and studied for the ability to produce OA using the agar plug technique and thin layer chromatography (TLC). *A. niger* was the species found most commonly (63% of isolates of these three species), but only 3% of them produced OA. *A. ochraceus* also occurred commonly (31% of isolates), and 75% of those studied were capable of OA production, a much higher percentage than reported elsewhere. *A. carbonarius* was found (6% of isolates) only in Alta Paulista, the hottest region studied, and only from beans in the drying yard or in storage. However, 77% of the A. carbonarius isolates were capable of producing OA. Average infection rates for cherries taken from trees were very low, but were higher in fruit taken from the ground, from the drying yard and from storage, indicating infection by toxigenic species after harvest. The average OA content in 135 samples of mature cherries from trees, overripe from trees, overripe from the ground, drying yard and storage was 0.1, <0.2, 1.6, 2.1 and 3.3 μg/kg, respectively. Although individual OA levels varied widely, only 9 of the 135 samples analysed exceeded 5 μg/kg OA, with one sample of poor quality dried coffee in excess of 100 μg/kg OA. The causes of high contamination were investigated on the farms concerned and several critical points were found, relating both to local climatic conditions and the drying processes used.