

The Presence of Ochratoxin A in Coffee Due to Local Conditions and Processing in Four Regions of Brazil

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SUMMARY

This work was carried out with the main objective of investigating the relationship between the presence of ochratoxin A (OA) in coffee and local conditions and processing. Over four hundred coffee samples were examined at different stages: cherries and overripe from trees, overripe from the soil, the patio (drying yard) and barn storage. These four coffee regions were: Alta Paulista (western of São Paulo State), Sorocabana (Southwest São Paulo State), Alta Mogiana (northeast of São Paulo State) and Cerrado Mineiro (Western of Minas Gerais State), during the coffee harvest period of 1999 and 2000.

The average of ochratoxin A in 135 samples of cherries from trees, overripe from trees, overripe from the soil, patio and barn was 0.12, <0.2, 1.6, 2.1 and 3.4 µg/kg respectively. The highest OA contamination was found in coffee from patio and barn. Only one sample of coffee (floaters type and stored in a barn) presented an OA content of 108.5 µg/kg. The cause of such a high contamination was investigated with the farmer and several critical points were found during the drying process and local conditions such as: the farm being located in a region of hydrographic basin affected by heavy mist over the farm; the workers did not turn over the coffee as much as necessary; in most cases the coffee layer was very thick; the barn had moisture infiltration from the ceiling and floor; there was also the presence of birds in the barn and all these factors can favor fungal growth in dried coffee. Moreover, 36% of this coffee sample was contaminated with *Aspergillus ochraceus* a potential producer of OA. These factors may have contributed to such high OA levels in the coffee sample.

In Alta Paulista, coffee samples from patio and barn, which were visibly mouldy, presented ochratoxin A content in one these samples at level of 19.75 µg/kg. After investigation the reason found for this was that the coffee elevator was broken and the bottom with coffee became covered with water, remoistening the dried coffee again.

Alta Mogiana and Cerrado Mineiro are known as region producing good quality coffee, because of the dry climate and high altitude. OA was found in some samples although very sporadic. Other examples will be shown in this presentation correlating the presence of OA and farm conditions.