

Influence of Water Activity on Mould Growth and Ochratoxin A Production in Coffee

**M. H. TANIWAKI¹, G. R. URBANO², H. A. CABRERA PALACIOS¹,
M. F.F. LEITÃO², H. C. MENEZES², M. C. VICENTINI¹, B. T. IAMANAKA¹,
N. N. TANIWAKI³**

¹Instituto de Tecnologia de Alimentos - ITAL, Av Brasil, 2880 - 13.073-001,
Campinas-SP, Brazil

²Faculdade de Engenharia de Alimentos da Universidade de Campinas, Campinas -SP, Brazil

³Instituto Adolfo Lutz, São Paulo - SP, Brazil

SUMMARY

The influence of water activity on mould growth and ochratoxin A (OA) production in raw coffee by *A. ochraceus* and *A. carbonarius* was evaluated. The adsorption isotherm of coffee beans determining the relation between water content during storage and the corresponding values for water activity was carried out. In the next step, coffee beans were inoculated with a mixture of *A. ochraceus* spores and stored in desiccators at 25°C until reaching equilibrium relative moisture levels corresponding to coffee bean water activity (a_w) levels of 0.80, 0.87 and 0.95, respectively. The same procedure was carried out with a mixture of *A. carbonarius* spores using the same water activity at 25°C. At a_w level of 0.80 OTA level was very low reaching a maximum level of 0.15 µg/kg and 0.40 for *A. ochraceus* and *A. carbonarius*, respectively after 21 days storage. At water activity above 0.80 (0.87 and 0.95) OA production was present. In a third experiment, coffee beans were inoculated with *A. ochraceus* and stored in desiccators at the same equilibrium moisture levels of the second experiment but at cycling temperatures of 25°C for 12 h and 14°C for 12 h. OA production was higher at cycling temperatures than at the 25°C constant temperature.