Abstract

The effect of alternating temperatures in the storage of coffee was studied. From the day and night values, two average temperatures (25 and 14 °C) were chosen. Such changes may occur, mainly during storage in farm barns and transport. The study was carried out under different conditions of equilibrium relative humidity (ERH): 80%, 87% and 95% for the production of ochratoxin A (OTA) by *Aspergillus ochraceus* in raw coffee. Temperatures were cycled at 12 h intervals. Coffee was also maintained at 25 °C under similar conditions, but without temperature cycling, at the same three values of relative humidity. Ochratoxin production was analysed after periods of 39 and 60 days after the coffee had reached the equilibrium relative humidity. The water activity and moisture content of coffee were checked and OTA production was quantified.

There was little or no OTA production at 80% ERH; at 87% and 95% OTA production was high after different days of incubation. Under alternating temperatures OTA production was higher than at constant temperature, and alternating temperatures indirectly favoured OTA production due to condensation and a subsequent rapid increase in moisture content and water activity of the coffee beans.