

**Effect of initial aflatoxin concentration, heating time and roasting temperature on aflatoxin reduction in contaminated peanuts and process optimisation using response surface modelling.**

**Abstract**

Response surface methodology was applied to optimise the aflatoxin reduction in both naturally and artificially contaminated samples using dry oven. The effect of initial aflatoxin concentration (0-400ngg-1), heating time (30-120min) and temperature (90-150°C) was evaluated. The maximum reduction of AFB1 (78.4%) and AFB2 (57.3%) of artificially contaminated samples with initial aflatoxin concentration of 237 and 68ngg-1, and those of AFG1 (73.9%) and AFG2 (75.2%) with initial aflatoxin concentration of 215 and 75ngg-1 was obtained at 150°C. The maximum reduction of AFB1 (80.2%) and AFB2 (69.7%) of naturally contaminated samples with initial aflatoxin concentration of 174 and 25ngg-1 was obtained at 150°C and 130°C, respectively.

**Keyword:** Aflatoxins; Dry oven roasting; HPLC with fluorescence detection; Peanuts; Time and temperature.