Title Aflatoxin contents of stored and artificially inoculated cereals and nuts

Author Saleemullah, Amjad Iqbal, Iqtidar A. Khalil and Hamidullah Shah

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Abstract

Aflatoxin contents of cereals and nuts, collected from local markets of NWFP, were determined by thin layer chromatography (TLC). The seeds of these crops were also inoculated with *Aspergillus flavus* and the aflatoxin content and its relation with the proximate composition of seeds was studied. The effect of storage for different durations of time (2–3 and 12–18 months) on the aflatoxin content of seeds was also assessed. Aflatoxin content of cereals (wheat, maize and rice) ranged from 14 to 45 μg/kg, and that of nuts (almond, walnut and peanut) varied from 5 to 17 μg/kg. The aflatoxin content was within the safe limit (50 μg/kg) recommended by FAO. The aflatoxin content of inoculated seeds was significantly ($p < 0.05$) increased over control (un-inoculated seeds). This was positively related ($r = 0.65$) to moisture content of the seeds. However, negative correlation ($r = -0.50$) existed between aflatoxin and ash contents of the seeds. Protein, fat and total carbohydrate (NFE) contents were not much affected by inoculation. Prolonged storage for 18 months (1.5 years) significantly ($p < 0.05$) increased aflatoxin contents of seeds compared to short storage periods (2–3 months). It was concluded that aflatoxin content of food should be monitored to ensure food safety. Prolonged storage of cereal and nuts in warm humid condition should be avoided to minimize the risk of aflatoxin contamination.