

Mycotoxin occurrence in foodstuffs in Iran: current situation and future challenges

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Background and Aims: Mycotoxins are secondary fungal metabolites which cause mycotoxicosis when ingested by higher animals. They affect a wide range of agricultural products including most grain crops, nuts, dried fruits, etc. Mycotoxins have been reported to be carcinogenic, teratogenic, tremorogenic, haemorrhagic and dermatitic to a wide range of organisms. The important mycotoxins are aflatoxins, fumonisins, ochratoxins, cyclopiazonic acid, deoxynivalenol/nivalenol, patulin and zearalenone. In 2002, Iranian authorities have set maximum limit for mycotoxins in foods and feeds. Unfortunately, in Iran, no comprehensive study regarding contamination of foods with mycotoxins has been done yet. According to the limited data available, the major mycotoxin problems in Iran are aflatoxins in nuts (pistachio, peanuts, etc.) and cereals including rice and corn. The other mycotoxin problems in Iran include occurrence of aflatoxin M1 in milk and dairy products, patulin in apple juice, fumonisins in corn, ochratoxin A in liquorice, and deoxynivalenol in wheat. There are few identifiable problems with zearalenone and ochratoxin A in foods in Iran. The emerging mycotoxins have not been surveyed in foods in Iran yet. The future of mycotoxin issue in Iran awaits careful assessment of country's mycotoxin situation through proper scientific research and approaches with subsequent formulation of action plans for prioritization and implementation of defined technical and organizational strategies. Therefore, significant emphasis should be placed on devising 1) accurate, sensitive, specific and rapid procedures for detection and determination of mycotoxins contamination in various foods and feeds and 2) effective strategies for prevention of contamination and possible safe decontamination procedures. Currently, for the first time in Iran, a method is developed for simultaneous determination of 30 mycotoxins (including major and emerging ones) in rice by LC/MS/MS which will be used for monitoring of these mycotoxins in imported and domestic rice, and exposure assessment studies.

Keywords: Mycotoxins; Iran; Occurrence; Foodstuffs