Mycotoxin problem in Africa: Current status, implications to food safety and health and possible management strategies

Wagacha, J. M; Muthomi, J. W

Date: 2008

Abstract:

Mycotoxins are toxic secondary metabolites of fungal origin and contaminate agricultural commodities before or under post-harvest conditions. They are mainly produced by fungi in the Aspergillus, Penicillium and Fusarium genera. When ingested, inhaled or absorbed through the skin, mycotoxins will cause lowered performance, sickness or death on humans and animals. Factors that contribute to mycotoxin contamination of food and feed in Africa include environmental, socio-economic and food production. Environmental conditions especially high humidity and temperatures favour fungal proliferation resulting in contamination of food and feed. The socio-economic status of majority of inhabitants of sub-Saharan Africa predisposes them to consumption of mycotoxin contaminated products either directly or at various points in the food chain. The resulting implications include immuno-suppression, impaired growth, various cancers and death depending on the type, period and amount of exposure. A synergistic effect between mycotoxin exposure and some important diseases in the continent such as malaria, kwashiorkor and HIV/AIDS have been suggested. Mycotoxin concerns have grown during the last few decades because of their implications to human and animal health, productivity, economics of their management and trade. This has led to development of maximum tolerated limits for mycotoxins in various countries. Even with the standards in place, the greatest recorded fatal mycotoxin-poisoning outbreak caused by contamination of maize with aflatoxins occurred in Africa in 2004. Pre-harvest practices; time of harvesting; handling of produce during harvesting; moisture levels at harvesting, transportation, marketing and processing; insect damage all contribute to mycotoxin contamination. Possible intervention strategies include good agricultural practices such as early harvesting, proper drying, sanitation, proper storage and insect management among others. Other possible interventions include biological control, chemical control, decontamination, breeding for resistance as well as surveillance and awareness creation. There is need for efficient, cost-effective sampling and analytical methods that can be used for detection analysis of mycotoxins in developing countries.