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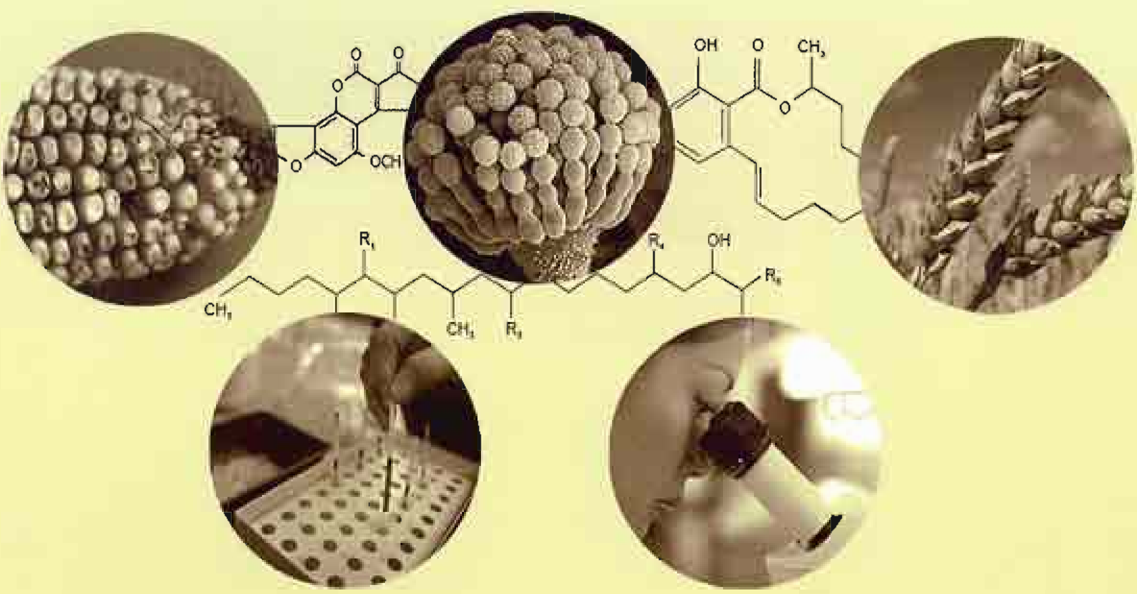

Book of Abstracts and Programme

Global Mycotoxin Reduction Strategies: Asia and Pacific Rim

World climate change represents a serious risk to food and drink from mycotoxins affecting Asia and the Pacific Rim

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Safe food production is challenged by climate change. There will be major problems in already hot countries in relation to obtaining food and water. However, mycotoxins from fungi are a crucial aspect affecting all countries. Specific predictions will be made in the current presentation on how climate change will affect mycotoxins and the fungi that produce them. Water activity and temperature are crucial for fungal growth and mycotoxin production, although the optima for both are different. Warmer weather, heat waves, greater precipitation and drought will have various, although partially-predictable impacts, depending on which regions of the world are considered. The situation is indeed complex. Some regions (e.g. tropical countries) may become too hot and dry for the survival of mycotoxigenic fungi which may lead to the extinction of *Aspergillus flavus* from near pasteurization temperatures. Crops will become liable to aflatoxins (AF) in currently cool climates and cold regions more susceptible to temperate problems, e.g. ochratoxin A (OTA), deoxynivalenol or patulin. It is possible to predict that mycotoxigenic fungi with high temperature optima for growth will not be replaced by those with low. On the other hand, fungi with low optima may be outcompeted by organisms with higher temperature ranges. AF contamination is unlikely to be replaced, to any large extent, by any of the other mycotoxins on this basis alone. The *Alternaria* toxins could be replaced by other mycotoxins as the optima for these compounds are particularly low. Crops which have been introduced to exploit the altered climate may be subject to fewer mycotoxin producing fungi which is known to occur with other pests on introduced plants (i.e. the "Parasites Lost" phenomenon). Hence we may find peanuts being grown in parts of Europe without a concomitant AF problem. The mycotoxin issue also involves post-harvest scenarios and the general situation described above will also apply, although some fungi are restricted to the post harvest niche. Regions which can afford to control the environment of storage facilities by, for example, refrigeration, may avoid post-harvest problems although at high additional cost. Altered pre- and postharvest conditions may lead to completely novel mycotoxins becoming a threat: how will we even recognize these before they cause diseases? Mycotoxigenic fungi and mycotoxins as bioweapons have not been given sufficient consideration in light of the predicted alterations in weather. Regions, or countries, will be susceptible where climate change will permit growth of fungi (e.g. *A. flavus*) and the production of mycotoxins (e.g. AF). In addition, the nefarious introduction or natural growth of mycotoxigenic fungi in drinking water systems needs to be considered, as mycotoxin production and growth have been demonstrated conclusively in this commodity. Furthermore, many mycotoxins are mutagenic which may cause fungi to mutate on crops leading to the evolution of strains which produce quantitatively and/or qualitatively different mycotoxins. Many of these issues have not been considered and will be discussed in this particular presentation. In conclusion, action is required urgently to begin to address these complex issues.