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Short Communication

What are the Mycotoxins?

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Mycotoxins are low molecular weight. Natural products and toxic chemical secondary metabolites produced by filamentous fungi when they grow under favorable conditions on foods and feeds. Chemical structure, they vary from simple C4 compounds, e.g., moniliformin, to complex substances such as the phomopsins.

Mycotoxins resist decomposition or being broken down in digestion and thermal stable, so they remain in the food chain even after heat treatment, such as cooking and freezing.

There is no reason of mycotoxins production known yet, but they inhibit the physiological functioning of other organisms as antibiotics which inhibit the growth of bacteria to provide a competitive advantage, also may inhibit the growth of fungal species.

Significantly, mycotoxins are non-volatile, therefore, they are non-airborne except if they are attached with a particle and there are an aerosolization happening, therefore, enough exposure through inhalation is uncommon. So, they remain in food or feed products long after fungi have disappeared.

Mycotoxins affect several agricultural products, including root crops, cereals, oilseeds, pulses, nuts, dried fruits, and coffee.

Contamination of agricultural products occurs because of infection by toxigenic fungi under favorable environmental conditions in the field at various stages in the food chain, e.g., pre-harvest, harvest, drying and storage.

The presence of mycotoxins in feedstuffs decrease the quality of feed in of both protein and value of energy.

Over 400 mycotoxins have been isolated and identified, but only a small number of mycotoxins known to cause serious diseases in humans also animals were studied.

Five major types of mycotoxins which infect human, animals health and agricultural significance: (i) aflatoxins, (ii) fumonisins, (iii) ochratoxin A, (iv) zearalenone and (v) trichothecenes. When mycotoxins ingested by animals or humans, mycotoxins cause a toxic response known as mycotoxicosis Some of mycotoxins can interfere with synthesis of protein, and result in effects fluctuating from sensitivity of skin or necrosis to extreme immunodeficiency. Others are neurotoxins, which at low doses, can lead to continuous quiver in animals at high doses result in a brain damage or death.

The primary effect of chronic of many mycotoxins is the induction of cancer, particularly of the liver. Some mycotoxins inhibit DNA and RNA replication through impairment of amino acid transport and m-RNA transportation cause antibody production in lower level, and hence can cause mutagenic or teratogenic effects.