



Aflatoxin versus Curcumin

Neeta Mathuria*

Department of Zoology, Gujarat University, India

***Corresponding author:** Neeta Mathuria, Department of Zoology, Gujarat University, Cadila Pharmaceuticals Ltd, Ahmedabad-382440, Gujarat, India, Tel: +91 9998478743; Email: mathuria_25@yahoo.co.in

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Editorial

There are many biotoxins which are produced as metabolites from various fungus. Till now though being the huge shot problem were ignored on the worldly platform. These biotoxins are present in the regular food and feed stuff, creates a high degree of contaminations. They are many times found present in the export quality food and feed stuffs, which results in the cancellation of the order to be marketed, and thus play a crucial role in the downfall of the economy of the particular country. This majorly affects the exports of the countries which are highly dependent on the agricultural based products.

Aflatoxins are one of the same common culprits which are a group of closely related secondary toxic fungal metabolites produced by *Aspergillus flavus* and *Aspergillus parasiticus*. They are relatively low molecular weight organic compounds characterized by their diversity, their frequent specificity with regard to the taxonomy of the producing organisms, and their production during the stationary phase of the batch cultures. Early on it was considered as part of the storage flora in inadequate postharvest storage and poor storage conditions during distribution of commodities such as maize, groundnuts, peanuts, and barley. It is now increasingly recognized that the contamination of some these commodities, especially peanuts and maize, with aflatoxin is a far more complex phenomena that may involve infection of maize by colonizing and growth. Aflatoxins are agents causing hepatotoxic, hepatocarcinogenic, mutagenic, and teratogenic ill effects in both humans and animals. It has been found to be widely and deeply penetrated in the food chain. Aflatoxins when tested on laboratory animals such as mice for a long period of exposure orally cause moderate to severe damage in hematological, biochemical and also upto histopathological levels.

In farm animals or human beings whose diets largely contain plant products, aflatoxin may be produced directly by growth of molds on animal feed or in human food. Illnesses caused by consuming such contaminated food/feedstuffs are referred to as primary aflatoxicosis. It is also possible that toxicosis may occur as a result of ingestion of animal products such as milk, cheese, meat, or eggs that have not themselves been contaminated by moldy growth. Illness arising from such sources is referred as secondary aflatoxicosis.

Turmeric is one of the largely consumed spices used in many parts of the world as their regular dietary intake. Curcumin is one of the components of the turmeric which provides typical yellow coloration to the turmeric. Curcumin has many antioxidant properties and also has the capacity of lowering cholesterol, fatty acids, and triglycerides in an aflatoxin-induced toxicity, when tested in laboratory animals such as mice. It has also been resulted from many studies that, curcumin also helps reducing oxidized proteins in amyloid pathology in Alzheimer transgenic mice. Researchers found that curcumin inhibited the production of interleukin-8, a protein produced by white blood cells (WBC) that contributes to tumor growth. Curcumin also has anticarcinogenic activity; it also lowers cholesterol and triglycerides levels, decreases the susceptibility of low density lipoprotein (LDL) to lipid peroxidation, and inhibits platelet aggregation. These effects have been noted even with low doses of turmeric in many of the studies.

Worldwide, researchers are testing curcumin and describing it as a boon drug against cancer and other diseases in humans and animals. Its effectiveness has also been shown against aflatoxin-induced cancer, which is a worldwide problem. Thus, curcumin currently getting the attention of

the researchers to be the future drug for many of the disease in the natural form. In future, further investigations on the curcumin will prove it to be one of the best natural herb useful for treatment of many disease in humans and animals, also it will be useful to treat the aflatoxin related problems

in export quality food /feed stuff, which will help to increase the economy of the countries which are highly dependent on the export or the import of the agricultural and the animal products.