MOLD AS TOXIN

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quantities, and to be harmful to tissues when injected in animals. The Penicilium genus also produces penicillin, a very beneficial mycotoxin. Despite the common view that Alternaria is a benign mold, different species of this mold are known to produce nearly 125 compounds of which one-quarter are toxic to animals and cell culture systems.

Trichotheccenes are a group of over 100 mycotoxins that are produced within several fungal genera: Fusarium, Trichotheceum, Cylindrocarpon, Mycophthora, Trichoderma, Verticillium, Cephalosporium, Monosporium and Stachybotrys. These mycotoxins are most prevalent as contaminants of grain. Trichotheccenes also have been isolated from various water-damaged indoor environments. While Fusarium is believed to be the most important producer of trichotheccenes, much public and media attention has focused on Stachybotrys for little good scientific reason.

Stachybotrys atra was first identified as a fatal hemorraghic disease in horses in 1931. The disease was observed in Eastern Europe and Russia resulting from the presence of Stachybotrys and other fungi in moldy straw. Farm workers handling the moldy straw also reported symptoms of dermatitis, bloody rhinitis, cough and severe respiratory tract irritation. More recently, occupational stachybotrysosis has been identified in farm workers, canned oil plant workers, and various facilities where grain is processed or where plant material is used. In these occupational settings, exposure is to high concentrations and symptoms include chest and upper respiratory irritation, fever, dermatitis and, in some rare cases, leukopenia.

It was reported recently that pulmonary hemorrhage and hemorrhage in infants was associated with exposure to Stachybotrys. However, subsequent review by the Center for Disease Control criticized the studies as lacking scientific rigor and rejected the authors conclusions about an association of the disease with Stachybotrys exposure. Problems Assessing Mycotoxin Toxicity

Because the primary route of mycotoxin exposure for humans and animals is ingestion, the preponderance of research has focused on human and animal ingestion studies. Thus, levels of mycotoxin present in human and animal foods are fairly well documented. A recent study has revealed that when comparing strains of mycotoxin present in pure cultures and spores, there is only a 60 percent match.

Some fungal species have more consistent mycotoxin production than others. For example, of the molds analyzed, A. flavus, Penicillium invenustum and Fusarium oxysporum exhibit consistent results between pure culture and spore extracts. A. flavus and Penicillium verrucosum reveal inconsistent results between the two extracts. Thus, strains identified in pure culture were different from those identified in spore culture.

There is currently no research on differences that might exist with Stachybotrys species.

Although we can identify a species associated with mycotoxins, the data associated with inhalation is more compelling evidence expressed in most molds. Environmental samples are likely to be of low levels in ambient air simply because a particular fungal genus or species has been detected. We currently have no reliable analytical methods with which ambient air samples can be evaluated for the presence of mycotoxins.

For example, investigation of the type of toxigenic mold found using the building sciences studies indicate that in environmental samples, the most common is a single species. Also, among the various studies indicating that mold could be expected in ambient air. The results also show the difficulty of detection of the type of mold that is present.

"Production of mycotoxins by any fungal species is highly dependent on growth conditions...Often these conditions are ideal when the presence of mycotoxins in environmental samples is investigated in a test laboratory."
Mold as Toxin

Mold has been reported to cause various health effects in both residential and commercial settings. It is generally accepted that mold exposure can lead to respiratory symptoms such as congestion, sneezing, and coughing. However, there is limited research on mold's effects on the nervous system.

Some studies have suggested that mold exposure can cause symptoms such as headaches, irritability, and cognitive dysfunction. These symptoms are often referred to as "mold toxicity." However, the mechanisms by which mold exposure causes these symptoms are not fully understood.

Despite the lack of conclusive evidence, many individuals report improved health after mold removal. This has led to the development of "mold avoidance" strategies, which aim to prevent mold exposure in the first place. These strategies include improving indoor air quality and reducing moisture levels in buildings.

References: