

Reasons Discovered for the Toxicity of Indoor Mould

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ScienceDaily (Oct. 12, 2012) — A team of researchers at the University of Helsinki has discovered how indoor mould makes people sick. The only remedy is to heal the living environment.

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For more than a decade, it has been known that the fungus *Trichoderma longibrachiatum* is the most common finding wherever people are suffering from health hazards related to damp building damage. However, it has not been known how this mould -- which is typical of most buildings with indoor air problems -- harms people's health. Published in September, a study by a team of researchers at the Department of Food and Environmental Sciences of the University of Helsinki explains how microbial metabolites in the living environment cause health problems

With their colleagues, Raimo Mikkola, Maria Andersson and Mirja Salkinoja-Salonen have studied indoor mould for a long time. They discovered that the toxic substance produced by the mould fungus *Trichoderma longibrachiatum* consists of small peptides that contain alpha-aminoisobutyric acid and other amino acids not found in proteins. The discovery and purification of the toxin to determine its molecular structure was made possible by a sperm test developed earlier by the same team. This test served as a detector in tracing the toxin molecules produced by the fungus.

Nanochannels cause health problems

The toxic foreign peptides produced by the *Trichoderma longibrachiatum* fungus were named trilongins. Their toxicity is based on their ability to be absorbed in tissues and cells in the body and produce nanochannels that permeate potassium and sodium. A channel formed by trilongins can obstruct vital channels that carry potassium and sodium and control communication systems that regulate heart cells, respiratory cells and nerve cells, for example.

Health hazards related to foreign peptides cannot be prevented with antimicrobial drugs. Trilongins are also highly resistant to heat and antimicrobial chemicals. Diseases caused by the mould fungus can only be prevented by healing the living environment.

The team discovered more than ten chemically resistant foreign peptides and determined their molecular structures. Mass produced by the fungus *Trichoderma longibrachiatum* was measured to contain as much as 10 percent trilongins. Of the nanochannels produced by trilongins, 2:1 combinations of long and short trilongins were the most harmful for the cells of humans and other warm-blooded animals. These channels remained active for a longer time than channels consisting of one type of trilongin.

The study was carried out by the Finnish Centre of Excellence in Integrative Photosynthesis and Bioactive Compound Research at Systems Biology Level with support from the Academy of Finland and the Finnish Work Environment Fund.

Toxic mold

http://www.sciencedaily.com/articles/t/toxic_mold.htm

Molds are ubiquitous in nature, and mold spores are a common component of household dust.

The term toxic mold is sometimes used to refer to mold-related indoor air quality problems.

Exposure to significant quantities of mold spores can cause allergic reactions.

Under proper growing conditions, some species of molds may generate molecular compounds called mycotoxins.

In large quantities or with chronic exposure, mycotoxins can be toxic to humans or animals.

For more information about the topic Toxic mold, read the full article at Wikipedia.org, or see the following related articles:

Mold — Molds, or mould, are various fungi that cover surfaces as fluffy mycelia and usually produce masses of asexual, or sometimes sexual, spores. Mold is ...

Indoor air quality — Indoor Air Quality (IAQ) deals with the content of interior air that could affect health and comfort of building occupants. The IAQ may be ...

Fungus — A fungus (plural fungi) is a eukaryotic organism that digests its food externally and absorbs the nutrient molecules into its cells. Fungi are very ...

Mite — Mites, together with ticks, belong to the subclass Acarina (also known as Acari) and the class Arachnida. Mites are among the most diverse and ...