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### **Additional Information:**

Note: Most fungi are cellulose decomposers and require moisture to survive and prosper. Our homes have cellulose available, in the form of wood, paper or cotton fabric. Spores can survive extreme heat or cold, as well as drought. When given the right amount of water, nutrients and the proper temperature, fungi can reproduce rapidly. Many fungal spores found in indoor air are simply plant-related fungi. Unfinished basements and crawl spaces are exposed to many of these common plant related fungi. Some common fungi are simply indicators of excess humidity or water in a home. However, almost any fungal spore could be an allergen to one person, but not to another. Some fungi produce mycotoxins that have been linked to human illnesses. Stachybotrys is the fungus that you have, no doubt, been hearing about. It can produce potent mycotoxins. Other fungi, such as Aspergillus, have species which not only produce mycotoxins, but also are considered human pathogens. People with compromised immune systems are more sensitive or prone to fungal related illnesses. Infants and the elderly may also be more sensitive.

Of the fungi listed above, here is a brief explanation of why they might be in the home and/or if they are problematic.

\*Acremonium produces an antibiotic called cephalosporin, which is why it is listed in the mycotoxin category. It is found in soil, and on decaying plant material. It is listed as an allergen.

\*Agrocybe/Coprinus are basidiospores generally associated with mushrooms and toadstools.

\*Alternaria is one of the major allergenic molds in the USA. Some species also produce mycotoxins.

\*Arthroconidia are formed by the breaking up of hyphae at the point of separation.

\*Arthrospores are asexual propagules, formed by the breaking up of hyphae at points of separation. This type of hyphae exists in certain fungal genera.

\*Aspergillus: some species produce a variety of toxins. It can act as a pathogen when deeply inhaled into the lungs. It is considered to be an allergen.

\*Aureobasidium is saprophytic on dead plant material/cellulose. It is common in soil. It is considered to be an allergen..



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### **Additional Information cont:**

\*Amphibious Hyphomycetes are soil fungi, which commonly degrade wet leaves.

\*Arthrimum is considered to be an agricultural spore, a cellulose decomposer.

\*Ascospores are the spore type characteristic of the Ascomycetes, one group of fungi. It is a large group of fungi, and not easily identifiable by microscope alone. It is a generalized group, and so, no statements can be made of their health effects.

\*Basidiospores are a spore type characteristic of the Basidiomycetes, one group of fungi. This group contains the toadstools or mushroom fungi.

\*Bipolaris is one agent responsible for the condition known as phaeohyphomycosis. It is also implicated in a variety of additional problems ranging from allergic bronchopulmonary disease through cutaneous infections. This mold is both saprophytic and pathogenic to some plants and may affect some domesticated animals.

\*Botrytis is a filamentous fungus isolated from decaying plants. No known infections have been reported in humans or animals.

\*Candida is a yeast. Yeasts are a very common form of fungi. They are ubiquitous in the environment and also a common inhabitant in the human body. As so it is often difficult to determine the clinical significance of the presence of yeast in environmental samples.

\*Chaetomium is present in soil and decaying wood. Some species produce mycotoxins. It is considered to be an allergen.

\*Cladosporium is one of the most common fungi found in indoor and outdoor air. It is considered to be an allergen.

\*Conidiobolus is found in soil and on decaying plant material. Some species can cause a subcutaneous infection of the nasal mucosa, which can lead to chronic inflammatory granulomatous disease. The route of infection is by inhalation or traumatic implantation.



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### **Additional Information cont:**

\*Cunninghamella has been found, only rarely, in immunocompromised individuals. It can act as a pathogen if it becomes traumatically implanted through the epidermis. It is a soil fungus.

\*Curvularia is one agent responsible for the condition known as phaeohyphomycosis. It is important that this mold can impact both immunocompromised individuals as well as individuals with intact immune systems. It is an allergen and has been recently recorded as an opportunistic pathogen in immunocompromised individuals.

\*Dictyoarthrinium is saprophytic on dead plant material/cellulose.

\*Fusarium is a common soil fungus. Some species can produce mycotoxins. Most cases of toxicity are related to ingestion of contaminated grains.

\*Geotrichum has been isolated from soil, plants, and food products. It is part of the normal flora of humans, and only been associated with illness in immunocompromised individuals.

\* Epiccocum is a mold that is fairly benign.

\*Hyphae are the structures from which spores arise. It is analogous to what roots and stems are to plants. There are visible differences in hyphal structure, which help us to identify what fungus they belong to.

\*Leptosphaeria is described as a rare agent of human infection.

\*Microsporum are associated with pet dander and can be allergens.

\*Memnoniella produces mycotoxins called trichothecenes, similar to those of Stachybotrys.

\*Mitospores are the spore type characteristic of the Mitospora, one group of fungi. This is a large group of fungi. It is a generalized group, and so, no statements can be made of their health effects.



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### **Additional Information cont:**

\*Mucor is a fungus found in the class Zygomycete. It is found nearly everywhere in nature and is commonly found on decaying fruits and vegetables, plants, and in the soil.

\*Myxostelida, formerly called Myxomycetes, are actually in the Kingdom Protozoa. These microorganisms feed on bacteria and particles of organic matter. They are commonly called "slime molds".

\*Nigrospora is commonly found in soil, decaying plants, and seeds. The pathogenicity of this mold is uncertain.

\*Oidium is what is commonly called "powdery mildew". It is not listed as an allergen.

\*Paecilomyces is commonly found in soil, on decaying plant material, and some species parasitize insects. It is considered to be an allergen.

\*Penicillium is commonly found in soil, and on decaying plant material. Some species produce a variety of toxins and antibiotics. It is considered to be an allergen.

\*Periconia is a mould that does not have a known sexual state and thus belongs to the Fungi Imperfecti. It is generally classified as a dematiaceous (dark-walled) fungus.

\*Peronospora is what is commonly called "downy mildew".

\*Phialides are spore-forming structures, present in certain genera of fungi.

\*Pithomyces is a common outdoor fungi. It is considered to be an allergen.

\*Pleospora is a teleomorph (Sexual State) of Alternaria.

\*Scopulariopsis is a filamentous fungus found in soil, plant material, feathers, and insects. It is considered to be an allergen.

\*Spegazzinia interestingly enough belongs to the fungi Imperfecta due to its lack of a sexual state.



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\*Sporotrichum inhabits soil and decaying wood. There have been some rare reports of isolation of this fungus in respiratory secretions from patients with chronic respiratory illnesses.

\*Stachybotrys (when they say "Black Mold" this is generally the one they are talking about) this mold produces mycotoxins that can affect mammalian cells called trichothecenes. Trichothecenes can cause suppression of the immune system. A trichothecene of particular importance is known as Satratoxin H. Absorption of the toxin in humans may lead to a condition called Stachybotrototoxicosis.

\*Stemphylium and Ulocladium are both common outdoor fungi. Both are considered to be allergens.

\*Torula is a commonly found mold in air samples. It is found in dead vegetation, soil, nuts, wood, and oats. This mold is known to be an allergen mainly associated with hay fever and asthma.

\*Trichoderma is saprophytic on soil and wood. It is very common. Some species can produce mycotoxins.

\*Urediniospores are the spore type for fungi commonly called "rusts". Rust diseases are species specific to certain plants, both wild and cultivated.

\*Yeast-like: some fungi have a yeast-like stage. In some genera of fungi, the yeast-like stage does not readily grow in culture. For these types of fungi, proper identification requires both stages of the fungus be present.

\*\*All of the fungi listed above, thrive in areas with high humidity, or water damage. It is recommended that the source of the moisture intrusion be located and properly remediated.