

Common Indoor Moulds (also called Mildew or Fungi) and Associated Health Effects

Dr. Jackson Kung'u

Health Problems Associated with Indoor Moulds

- Respiratory symptoms such as coughing and wheezing
- Respiratory infections such as aspergillosis
- Allergic diseases, including allergic asthma and bronchitis
- Non-inflammatory, unspecific symptoms, e.g., eye and skin irritation, fatigue, headache, nausea, and vomiting.

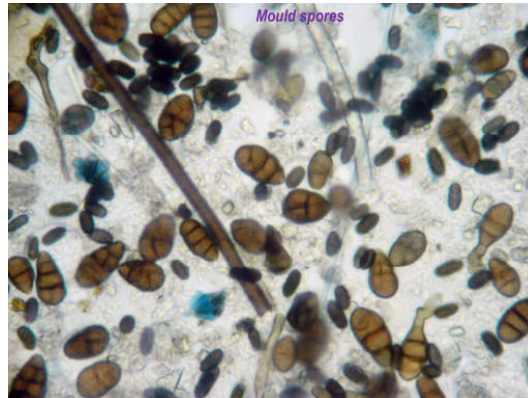


Figure 3. Spores of *Ulocladium* and *Stachybotrys* from an air sample.

Hazard classes of indoor moulds

In some countries indoor moulds have been grouped into 3 hazard classes based on associated health risk.

•Hazard Class A: fungi or their metabolic products that are highly hazardous to health. These fungi or metabolites should not be present in occupied dwellings. Presence of these fungi in occupied building requires immediate attention.

•Hazard class B: fungi which may cause allergic reactions to occupants if present indoors over a long period.

•Hazard Class C: fungi not known to be a hazard to health. Growth of these fungi indoors, however, may cause economic damage and therefore should not be allowed.

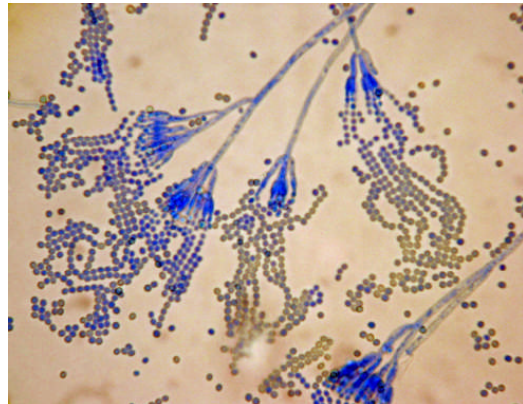


Figure 1. *Penicillium chrysogenum*. A very common indoor mould.

Moulds Most Frequently Encountered Indoors

Moulds most frequently found indoors are *Penicillium* (68%), *Aspergillus* (56%), *Chaetomium* (22%), *Ulocladium* (21%), *Stachybotrys* (19%), *Cladosporium* (15%), *Acremonium* (14%), *Mucor* (14%), *Paecilomyces* (10%), *Alternaria* (8%), *Verticillium* (8%), and *Trichoderma* (7%). These moulds are all known to cause different types of inhalation allergy.

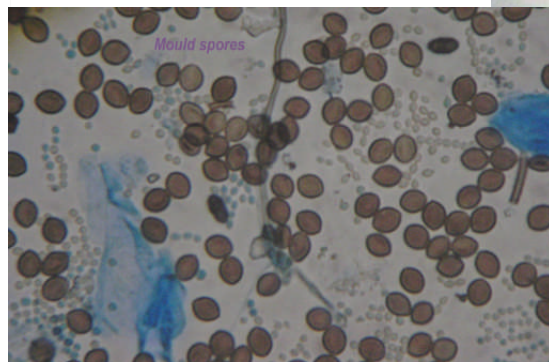


Figure 2. An air sample showing *Chaetomium* (brown lemon-shaped) and *Aspergillus/Penicillium* (tiny roundish) spores.



Figure 4. *Stachybotrys chartarum*. Initially believed to be the cause of infant deaths in Cleveland, USA, in 1993-1998

Common Indoor Moulds & Their Hazard Classes

- Cladosporium cladosporioides* (hazard class B)
- Cladosporium sphaerospermum* (hazard class C)
- Ulocladium botrytis* (hazard class C)
- Chaetomium globosum* (hazard class C)
- Aspergillus fumigatus* (hazard class A)
- Alternaria* spp (hazard class B)
- Fusarium* spp (hazard class A)
- Stachybotrys chartarum* (hazard class A)
- Trichoderma* spp (hazard class B)
- Scopulariopsis* spp (hazard class B)
- Penicillium chrysogenum* (hazard class B)
- Penicillium aurantiogriseum* (hazard class B)
- Acremonium* spp (hazard class B)
- Mucor* spp (hazard class A)
- Paecilomyces* spp (hazard class B)

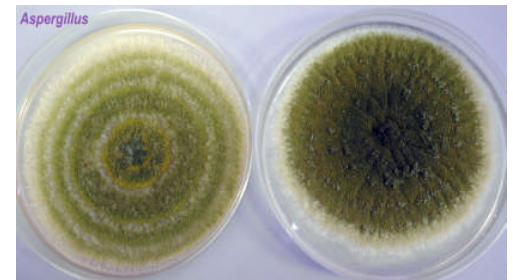


Figure 5. *Aspergillus flavus* growing on laboratory media. A producer of the highly toxic mycotoxin called Aflatoxin

- Aspergillus versicolor* (hazard class A)
- Aureobasidium pullulans* (hazard class B)
- Aspergillus flavus* (hazard class A)
- Wallemia sebi* (hazard class C).

We Can Help Analyse (by culture and non-culture methods) for Mould on:

- Air Samples* (viable and non-viable)
- Bulk Samples* (drywall, wood, dust, paper, etc)
- Surface Samples* (swabs, wipes, tapes, etc).

Mold & Bacteria Consulting Laboratories (MBL) Inc.

<http://www.moldbacteria.com>

1020 Brevik Place, Unit 1A

Mississauga, ON L4W 4N7

Tel: (905)290-9101; Toll Free: 1-866-813-0648

Fax: (905)290-8329