

Attention John Doe  
 Client John Doe Environmental  
 123 Anywhere Dr.,



Anytown, TX 99999

615 Mosman Ct. Houston, TX 77094

Project Mold Checkup

Bioldea.net 281-646-9977

Bioldea Order ID 060099

Test Date 7/31/2007

**Air Cassette Mold Spore Report, Method M11, M12, M13, M14, M15**

Client Sample No.	1	2	-	-	-	-	-
<b>Sample Location</b>	Bathroom	Outside					
<b>Volume Sampled L</b>	150	150					
<b>Spores Percent%</b>	50%	50%					
Agrocybe/Coprinus	-	-					
Alternaria	13	53					
Arthrospores	-	-					
Ascospores	-	67					
Asperg/Penicillium	53	667					
Arthrinium	-	-					
Basidiospores	-	53					
Bipolaris/ Drechslera	-	-					
Chaetomium	-	-					
Cladosporium	133	933					
Curvularia	-	13					
Epicoccum	-	-					
Fusarium	-	67					
Ganoderma	-	27					
Memnoniella	-	-					
Myxomycete	-	-					
Paecilomyces	-	-					
Peronospora (Mildew)	-	-					
Pith /Stemph /Uloclad	-	27					
Sporangiospore (Zygo)	-	-					
Scopulariopsis	-	-					
Spegazzinia	-	13					
Stachybotrys	27	-					
Rust/Urediniospore	-	-					
Tetraploa	-	13					
Torula	-	-					
Unidentified Spores	40	200					
<b>Total Spores</b>	<b>267</b>	<b>2133</b>					
<b>Bkgd Debris (1-5)</b>	-	-					

**Culture Viable Mold Report, Method M31, M32, M33, M34, M35, M36**

Client Sample No.	3	4	-	-	-	-
<b>Sample Location</b>	Up Closet	Outside				
<b>Vol Sampl'd (M31) L</b>	150	75				
<b>Dilution Times (M33)</b>	-	-				
Alternaria	-	13				
Arthrinium	-	-				
Aspergillus	-	27				
Aureobasidium	-	-				
Bipolaris/ Drechslera	-	-				
Chaetomium	-	-				
Cladosporium	13	67				
Cladophialophora	-	-				
Curvularia	-	-				
Epicoccum	-	13				
Exophiala/ Wangiella	-	-				
Fusarium	-	-				
Geotrichum	-	-				
Memnoniella	-	-				
Mucor	-	-				
Nigrospora	-	-				
Paecilomyces	-	13				
Penicillium	7	120				
Phialophora	-	-				
Phoma	-	-				
Rhizopus	-	-				
Scopulariopsis	-	13				
Stachybotrys	-	-				
Trichoderma	-	-				
Yeast	-	27				
Zygomycete	-	-				
Infertile hyphae	7	27				
Unidentified	-	-				
<b>Total fungal colonies</b>	<b>27</b>	<b>320</b>				

**Direct Exam Mold Spore Report**

Client Sample No.	5	6
<b>Sample Location</b>	Bathroom	Up closet
<b>Direct Sample Type</b>	Tape	Tape
Agrocybe/Coprinus	-	-
Alternaria	-	-
Arthrospores	-	-
Ascospores	-	-
Asperg/Penicillium	Low	Low
Arthrinium	-	-
Basidiospores	-	-
Bipolaris/ Drechslera	-	-
Chaetomium	-	-
Cladosporium	High	Medium
Curvularia	-	-
Epicoccum	-	-
Fusarium	-	-
Ganoderma	-	-
Memnoniella	-	-
Myxomycete	-	-
Paecilomyces	-	-
Peronospora (Mildew)	-	-
Pith /Stemph /Uloclad	-	-
Sporangiospore (Zygo)	-	-
Scopulariopsis	-	-
Spegazzinia	-	-
Stachybotrys	-	-
Rust/Urediniospore	-	-
Tetraploa	-	-
Torula	-	-
Unidentified Spores	-	-



## Interpretation of Mold Testing

**Client:** Jane M. Doe, 999 Anyway Blvd., Anytownville, TX 88888

**Your Project:** Home Mold Project

**Analyzed by:** J. Jay Jin, PhD of Mycology,  
BioIdea, 615 Mosman Ct., Houston, TX 77094.

**BioIdea Order ID:** 09088

**Testing Date:** 07/31/2009

**Report Date:** 08/01/2009

### Results of Mold Testing

#### Air Cassettes (Spore Traps)

1) In this air cassette method, the sampled air volume is **150 liters**, on the testing report, all the data are converted and standardized into counts per 1000 liters, thus it becomes comparable among samples and also comparable to other previous reports if there are. Also, since the sampled air is converted into 1000 liter reading and the cassette is read **50%** of its impact area, the **sensitivity** of this method is  $1000/150/50\%=13$ , i.e. if there is one spore detected on the air cassette, it will be projected into either 13 on the report.

2) In the **Outside** sample, there is a distribution of mold spores, with *Cladosporium* being the highest, followed by *Aspergillus/ Penicillium* spores. Some are typically outdoor molds or fungi, such as *Ganoderma* (a mushroom) or Basidiospores (other mushrooms), rust spores are solely outdoor fungi. Outdoor sample is counted 2927 spores /1000 L.

### Direct Exam

#### Tape lift

1) In this testing, the sample from **Air Duct** is overloaded with mold *Cladosporium* (see the below picture), which is classified as a BSL-1 mold. But this mold, does infect people with severely compromised immune system, as seen reported infecting organs and tissues in humans in quite a few cases (see G. S. De Hoog et al, Atlas of Clinical Fungi, CBS Netherlands, 2000).

2).....

3).....

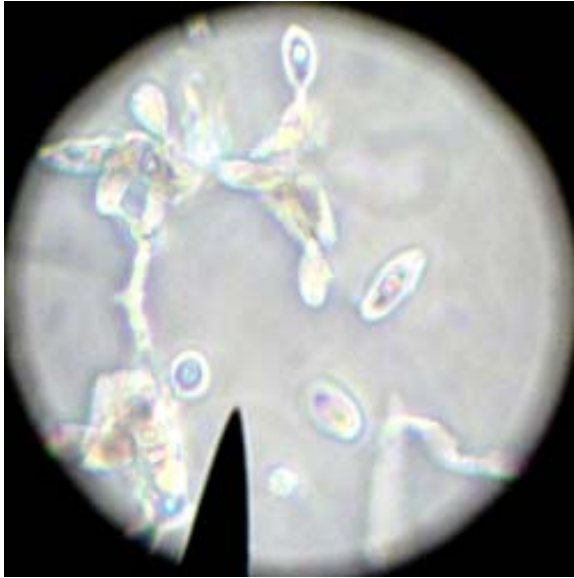


Figure 1: 1000x magnification, from the tape lift sample showing actively growing mold *Cladosporium*.

**Bulk Material**

3) On that sample there are overloaded mold spores of *Aspergillus sp.*(see below 2 pictures), one of whose species *Aspergillus fumigatus* constitutes 90% of all clinical mycotic cases. *Aspergillus sp.* is rated as BSL-1 or BSL-2 molds depending on the species.

4) .....

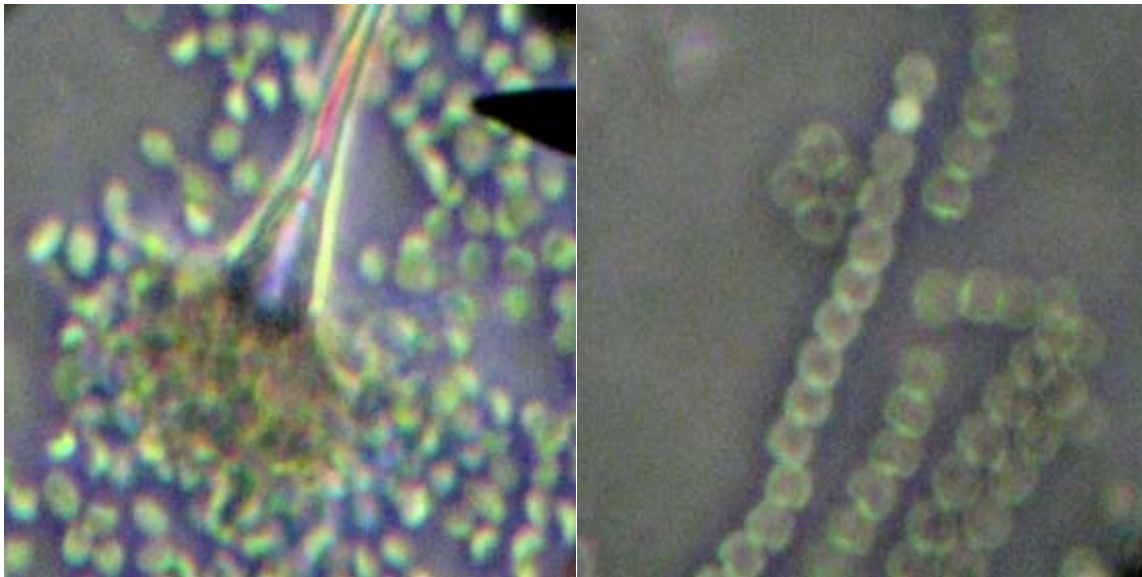


Figure 2 & 3: (L) 600x magnification, actively growing of a typical fruiting structure (conidiophore) and spores of *Aspergillus*. (R) 1000x magnification of typical spores of mold *Aspergillus* on the sample.

### **Culturable Mold** (Fungal Medium from EM6 / Anderson Impactor)

- 1) This method detects only viable AND culturable molds or bacteria on MEA fungal medium. Dead, nonviable and non-culturable molds are not reflected in this method. Culturable Mold method is the most accurate identification method.
- 2) The **sensitivity** of this method is  $1000/150= 6.7$  (rounded to 7), thus if one colony (=CFU: **colony forming units**) is detected on plates, it will be projected into 7 on the report in a standardized 1000 L volume conversion.
- 3) The **Outside** control has a broad spectrum of mold CFUs, are predominantly *Cladosporium*, *Penicillium* and infertile colonies, which is typical in summer when sampled outside.
- 4) .....

### **Implications and Suggestions**

- 1) All biological agents are classified into 4 categories according to their pathogenicity and epidemic danger, which is rated into BSL1 (**Biological Safety Level**) to BSL4 level, BSL1 being the least pathogenic, BSL4 becoming the most dangerous one. Molds are rated into BSL1 to BSL3.
- 2) .....
- 3).....
- 4) For molds to grow, there must have high humidity, high temperature and biodegradable materials (biological derivatives, some construction materials and spilled food, drinks). The air ventilation in a house should always on to filter air particulates and mold spores, good brands of air filters are necessary, such as using Filtrete brands. Cheap filter will not filter mold spores at all. The A/C system should always on to squeeze water molecules out of the indoor environment, reducing moisture for molds to grow. It is imperative to suppress the humidity if the air temperature is high.

J. Jay Jin, PhD of Mycology  
BioIdea, 615 Mosman Ct., Houston, TX 77094