

Air Sampling and Analysis for Mold in Hills Building UMass

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Second Floor Hills North

Introduction

Upon request, rooms on the second floor of Hills North occupied by UHS were sampled for airborne mold on October 17, 2011.

Methods

Air samples were collected for mold analysis using a BioPump Plus sampler that operated at a verified flow rate of 15 L/min (0.075 m³ total volume) and a 5-minute sample was collected in an Air-O-Cell cassette. One sample was taken outdoors for comparison with 5 indoor air samples. Collection media in the cassettes were analyzed microscopically by PAACB certified spore analysts at 400X magnification. The whole trace was enumerated and counts were converted to concentration and expressed as the number of spores per meter cubed of air (spores/m³). In addition one surface tape sample was examined in an area of efflorescence.

Results

Outdoors

Basidiospores	5,173
<i>Cladosporium</i>	2,706
Ascospores	840
<i>Penicillium/Aspergillus</i> -like	200
Smut	80
<i>Epicoccum</i>	13.3
Rust	13.3
<i>Pithomyces</i>	13.3
<i>Alternaria</i>	13.3
Unknown	213
Total	9,265.2 spores/m ³

Light particle trace with little debris

Room 216 - room had 20 potted plants; carpet was discolored (from watering plants??); soft fabric couch; soft fabric desk chair in old condition; window was open about 6 inches

Basidiospores	2,067
<i>Cladosporium</i>	640
Ascospores	307
<i>Penicillium/Aspergillus</i> -like	160
<i>Alternaria</i>	53.3
Smut	26.6
<i>Epicoccum</i>	26.6
<i>Botrytis</i>	13.3
<i>Cercospora</i>	13.3
<u>Unknown</u>	<u>227</u>
Total	3,534.1 spores/m ³

Moderate amount of particles

Room 233 – musty odor; evidence of small leak on ceiling tile (old?); vinyl furniture; carpet dirty; 1 potted plant; window closed

Basidiospores	453
<i>Cladosporium</i>	267
<i>Penicillium/Aspergillus</i> -like	66.6
Smut	66.6
Ascospores	40.0
Rust	13.3
<u>Unknown</u>	<u>160</u>
Total	1,066.5 spores/m ³

Moderate amount of particles

Room 222 Conference Room – carpet in poor condition and threadbare in some locations; 10 potted plants; large garbage can ½ full; fridge in good condition

Basidiospores	2,360
<i>Cladosporium</i>	1,093
Ascospores	453
<i>Penicillium/Aspergillus</i> -like	107
Smut	80
<i>Alternaria</i>	13.3
<i>Cercospora</i>	13.3
<u>Unknown</u>	<u>40</u>
Total	4,159.6 spores/m ³

Light amount of particles

Room 227 – very warm upon entry; soft fabric chair; carpet dirty; window open

Basidiospores	1,747
<i>Cladosporium</i>	640
<i>Penicillium/Aspergillus</i> -like	200
Ascospores	187
Smut	107
<i>Alternaria</i>	93.3
<i>Pestalotia</i> -like	13.3
<i>Epicoccum</i>	13.3
<i>Ulocladium</i>	13.3
Rust	13.3
Unknown	13.3
<u>Pollen</u>	40 * not included in total
Total	3040.8

Moderate amount of particles

Hallway – carpet dirty; 6ft of wall with an area of efflorescence and evidence of running water; window open; water fountain in hall

Basidiospores	4,293
<i>Cladosporium</i>	1,200
Ascospores	1,067
<i>Penicillium/Aspergillus</i> -like	133
Smut	66.7
Myxomycetes	66.7
<i>Alternaria</i>	13.3
<i>Curvularia</i>	13.3
<i>Polythrincium</i>	13.3
Unknown	307
Hyphal fragments	227 * not included in total
<u>Pollen</u>	26.7 * not included in total
Total	7,173.3 spores/m ³

Moderate amount of particles.

Hallway tape sample of paint chip from area of efflorescence

No spores evident

Interpretation

All indoor air samples had spore concentrations of the four most abundant taxa in the same rank order as the outdoor air sample although Ascospores and *Penicillium/Aspergillus*-like categories switched order when concentrations of these types were lower. Hence no significant rank order differences from outdoor air are apparent. In addition, in all rooms, spore concentrations of specific taxa were never greater than outdoor air other than types in very low concentrations. *Penicillium/Aspergillus*-like spore concentrations were not elevated and there was no evidence of spore types that might indicate a moisture problem. Moderate amounts of airborne particles were present. There was no evidence of surface mold growth in an area of moisture damage to a wall.

Recommendation

All indoor air samples were reflective of natural ventilation of the building from open windows and influx of outdoor spores. No additional action needed.