

LTI PROJECT:

MOLD GROWTH AND LIGHT

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INVESTIGATION QUESTION

**GIVEN A CONSTANT
MOISTURE, HOW DOES LIGHT
EXPOSURE EFFECT THE
GROWTH OF MOLD?**

BREAD MOLD EXPERIMENT #1

- Our variable throughout the first bread mold experiment was moisture.
- Room temperature and light exposure were held constant as our dependent variables.
- There were 5 petri dishes. We kept one piece dry and sprayed the other four by squirts of 5 (5 sprays, 10 sprays, 15 sprays and 20 sprays)

BREAD MOLD

EXPERIMENT #2

- Our variable throughout the second bread mold experiment was light exposure conditions.
- We put the petri dishes in 4 different locations receiving different amounts/types of light:
- Darkness, outside, indoor (normal light), constant light.
- We held moisture constant by applying 10 squirts to each petri dish

MOLD GROWTH DATA

**ARTIFICIAL
EXPOSURE**



**TOTAL
DARKNESS**

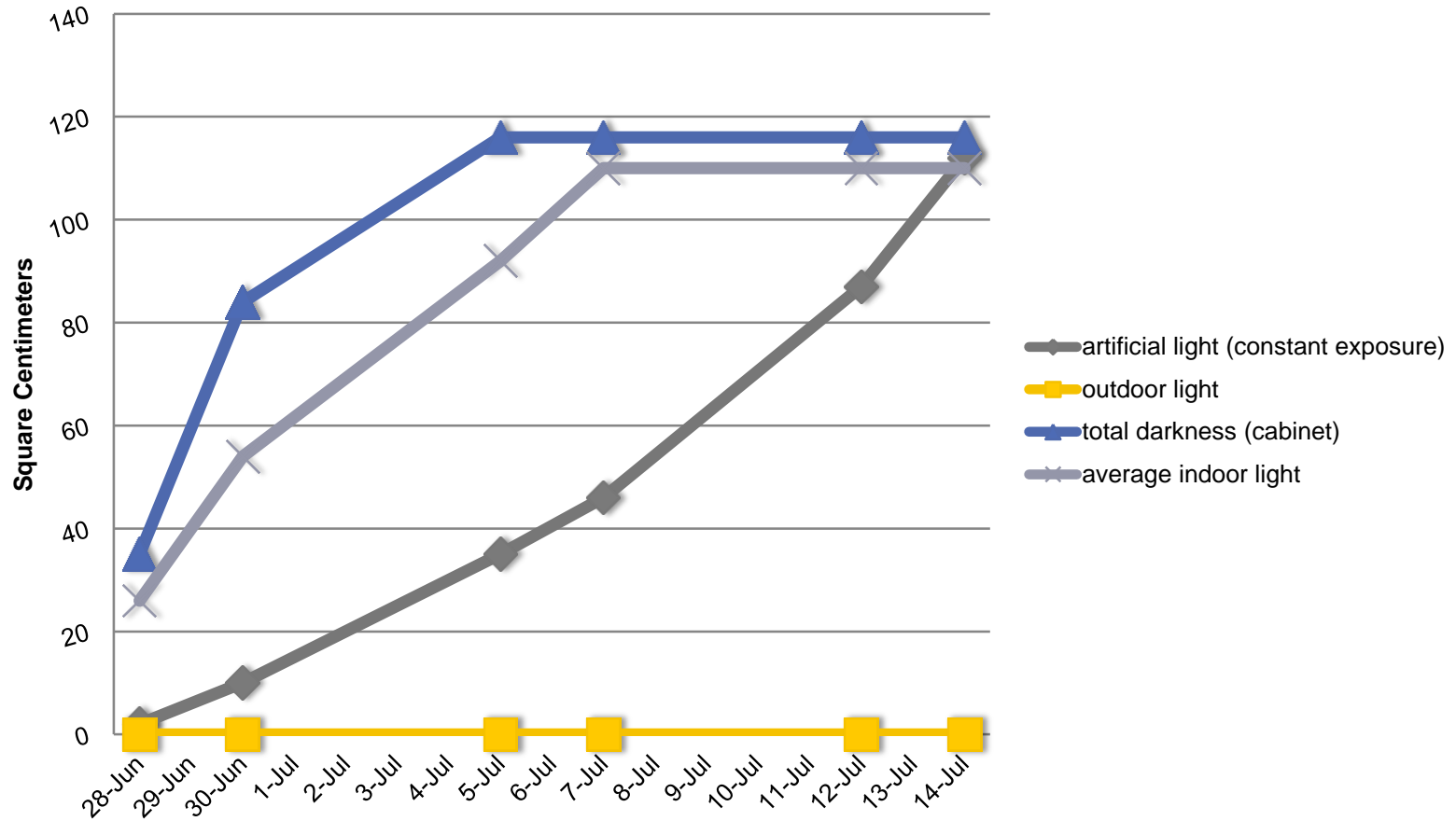


SQUARE CENTIMETERS OF MOLD GROWTH

	Outdoor Light	Artificial Light (constant exposure)	Indoor Light (average exposure)	Total Darkness
June 28 th	0	2	26	35
June 30 th	0	10	54	84
July 5 th	0	35	92	116
July 7 th	0	46	110	116
July 12 th	0	87	110	116
July 14 th	0	112	110	116

- Outdoor light: western side of a house, sunlight about half of the daylight hours
- Indoor light: bedroom, a little less than average indoor exposure

SQUARE CENTIMETERS OF MOLD GROWTH



EXPLANATION

In the presence of moisture, the amount of light exposure plays a big role in mold growth.

Sunlight appears to inhibit mold growth.

DATA SUPPORT FOR EXPLANATION

The culture dish in the darkest place grew mold the fastest while the one exposed to the most intense light (sun), grew no mold.

The constant artificial light grew less mold than the average indoor light (half the day light, half the day dark).

INVESTIGATION REFLECTIONS

Through our research, we found that there are 4 critical requirements for mold growth:

- Available mold spores
- Available mold food
- Appropriate temperatures
- Considerable moisture

The removal of any one of these items will prohibit mold growth

INVESTIGATION REFLECTIONS

Mold prefers a moist and dark environment

Mold grows in varying conditions and at varying speeds

Next variable to be tested: Temperature

- Our only sample that did not grow any mold was outdoors and exposed to a different (warmer) temperature than our other samples, which were all at room temperature
- Perhaps this warmer temperature dried out the sample and removed a critical requirement: moisture

REFERENCES

Florida Solar Energy Center

- <http://www.fsec.ucf.edu/en/consumer/buildings/basics/moldgrowth.htm>

Biology Department, University of Massachusetts Amherst

- <http://bcrc.bio.umass.edu/courses/spring2010/biol/biol312section3/content/growth-bread-mold-due-temperature>