PROJECT PROPOSAL

Final Project, BiosensorsFDV,

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AIM OF THE PROJECT

The aim is to study the relation between phototropism and geotropism on *Phycomyces blakesleeanus.*

We would like to find the threshold where phototropism has more impact than geotropism.

OUR HYPOTHESIS

1. There will be a time when the fungus will be attracted by light more than it is repealed by geotropism. We will know when it happens because we will observe a change in its growing behaviour.

SHORT SUMMARY OF THE PROJECT

We will change LED intensity and try to see when geotropism has more impact on *Phycomyces blakesleeanus* than light intensity.

MATERIALS NEEDED

OPEN-LAB :

1. Arduino
2. X Red LEDs
3. Cables
4. X Breadboards
5. X Resistance
6. Computer

WET-LAB :

1. 24 Petri dishes
2. *Phycomyces blakesleeanus* strains
3. Dark room
4. Black bed sheet

PROTOCOL

OPEN-LAB

In the Open-lab, we will build a setup and write a code that will allow us to light up the LED at different intensities (20 %, 40 %, 60 %, 80 % and 100 %).

WET-LAB

1. Make an overnight culture of *Phycomyces blakesleeanus* strains
2. Prepare the media in which *Phycomyces blakesleeanus* strains will grow during the experiment (PDA). Media recipe explained below.
3. Write a mark on each Petri dish you will use, right in the middle of the plate
4. Fill the Petri dish with this media
5. Make dilutions (by 10) of the overnight culture, in order to have a solution less concentrated **OR** streak the overnight culture on another Petri dish
6. At the beginning of the experiment, take one colony on the streaked plate or in the diluted solution, with a loop, and put it on the plate with the new media : this will be the plate in which the experiment will occur
7. Place the colony in the middle of the plate, where the mark was drawn (see 2.)
8. Wait for the solution to dry
9. When the solution dried, scotch the plate on the wall, above the LED.

CONTROLS

Since we work with geotropism and phototropism we will do negative and positive for both conditions (4 types of control):

	NEGATIVE CONTROL	POSITIVE CONTROL
NEGATIVE CONTROL	Perpendicular gravity, no light	Perpendicular gravity, 100% light

POSITIVE CONTROL	Parallel gravity, no light	Parallel gravity, 100% light

When we say perpendicular gravity, it means that the Dish will be on the table instead of scotched vertically on the wall (the force of gravity is perpendicular to the support of the plate instead of parallel).

REPLICATES AND REPETITIONS

We choosed 4 LED intensities : 20 %, 40 %, 60 %, 80 % with 3 replicates per intensity. Controls will also have 3 replicates each.

Since we won't be able to do the same experiment with the same organism, we won't have repetitions.