Planet of

Physarum Polycephalum

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Bauhaus University Weimar //
Being a Unicellar Organism //
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Introduction //

Physarum Polycephalum

Is unicellular, multinucleated plasmodium "Physarum polycephalum, literally the "many-headed slime", is a slime mold that inhabits shady, cool, moist areas, such as decaying leaves and logs. Like slime molds in general, it is sensitive to light; in particular, light can repel the slime mold and be a factor in triggering spore growth." (wikipedia)

First Time in Bio Lab // 22.10.2021

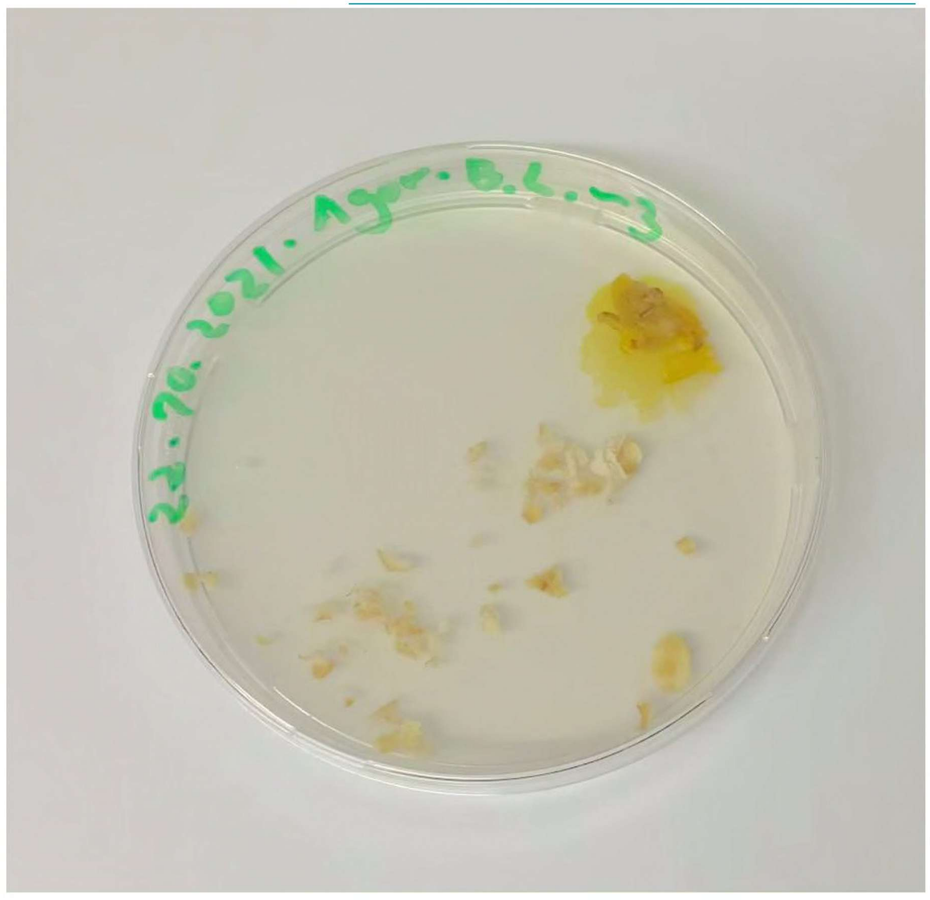
Cooking medium for physarum polycephalum, there are totally 5 plates:

- 1,7% agar plate
- Oat flakes

First Time in Bio Lab // 22.10.2021

The first night later in the student apartment, this unicellular organism started to spread its tentacles towards food. As well as a Time-Lapse was recorded, focued on plate #3, Duration about 10 hours.

https://www.youtube.com/watch?v=uVuFt2cY-L0



First Time in Bio Lab // 23.10.2021 Morning

The #3 grown pattern looks like a tree.

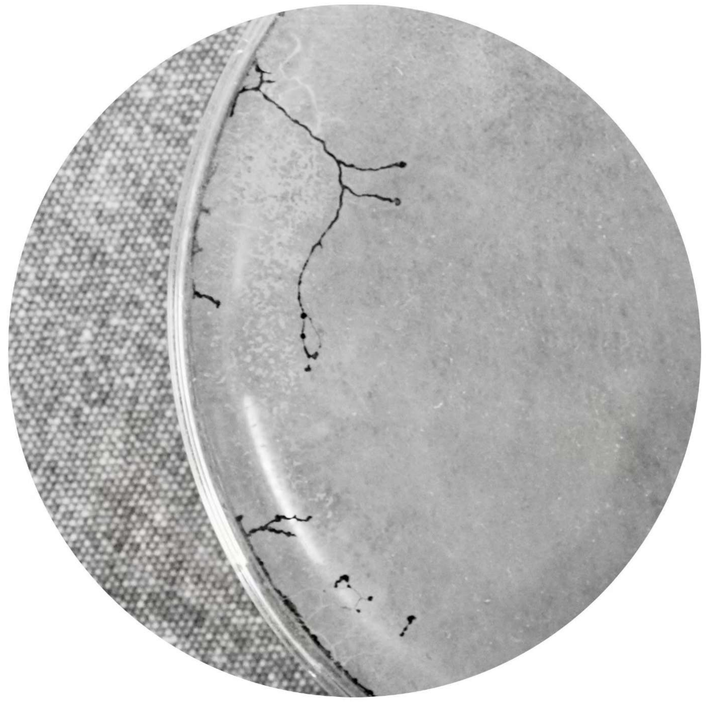
Feeding and Growing Process //
22.10 -- 14.11.2021

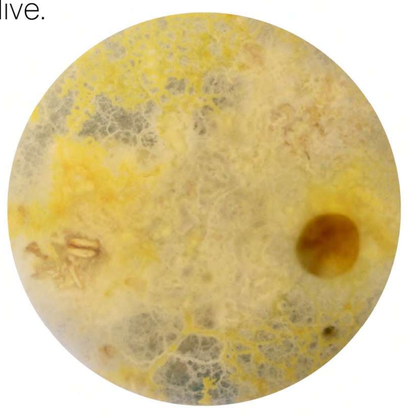
The main focus after the first time in Bio Lab is to develop and grow these 5 plates of slime mold.

After a few days, due to the lack of oatmeal, the slime mould inside the #3 plate turned white and the food became moldy and spoiled. Finally it showed black tentacles.

#4 plate is currently growing well, with fungal spots appearing on the bottom of the plate.

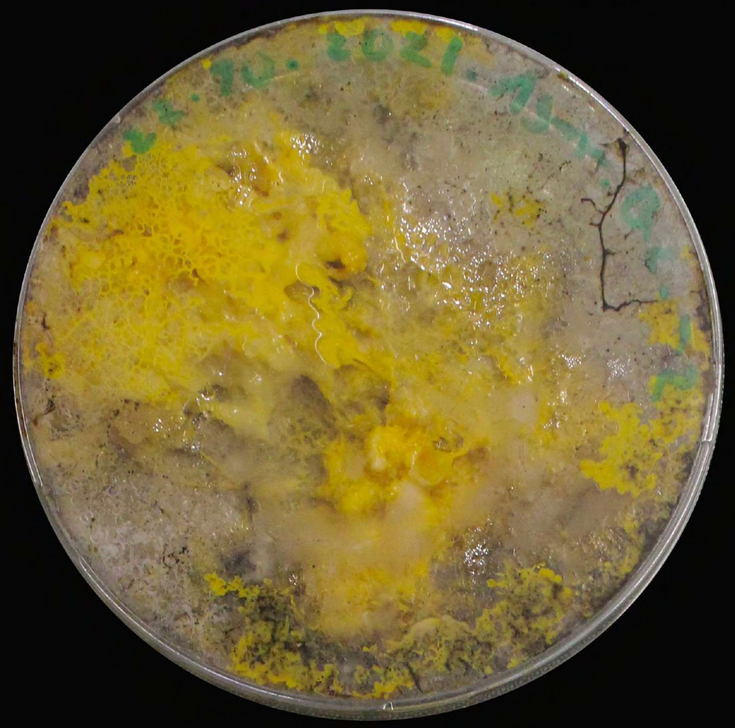
#1 plate shows moldy food, but despite this the slime mold is still stubbornly alive.



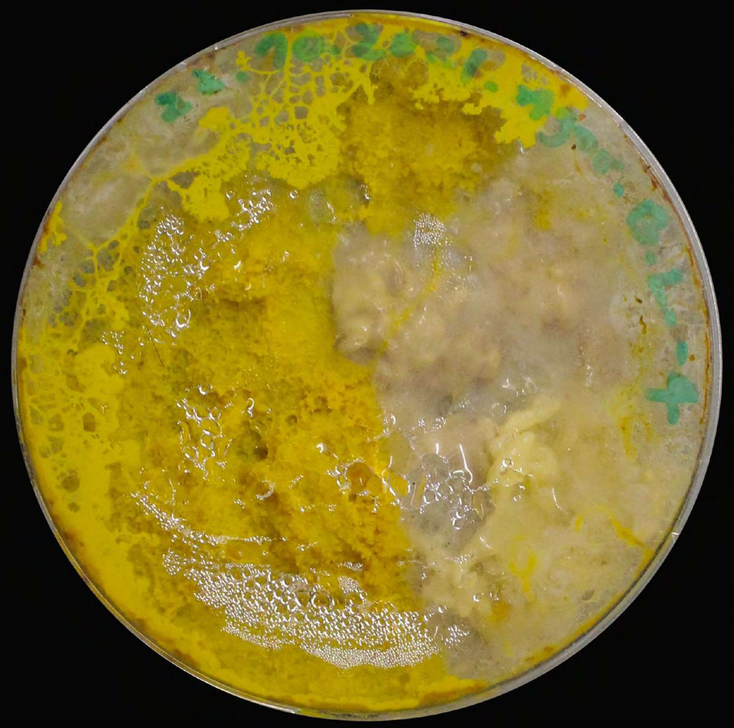


Feeding and Growing Process //
22.10 -- 14.11.2021

Except for oats, cooked rice can also be used as the food for slime mould.



#2

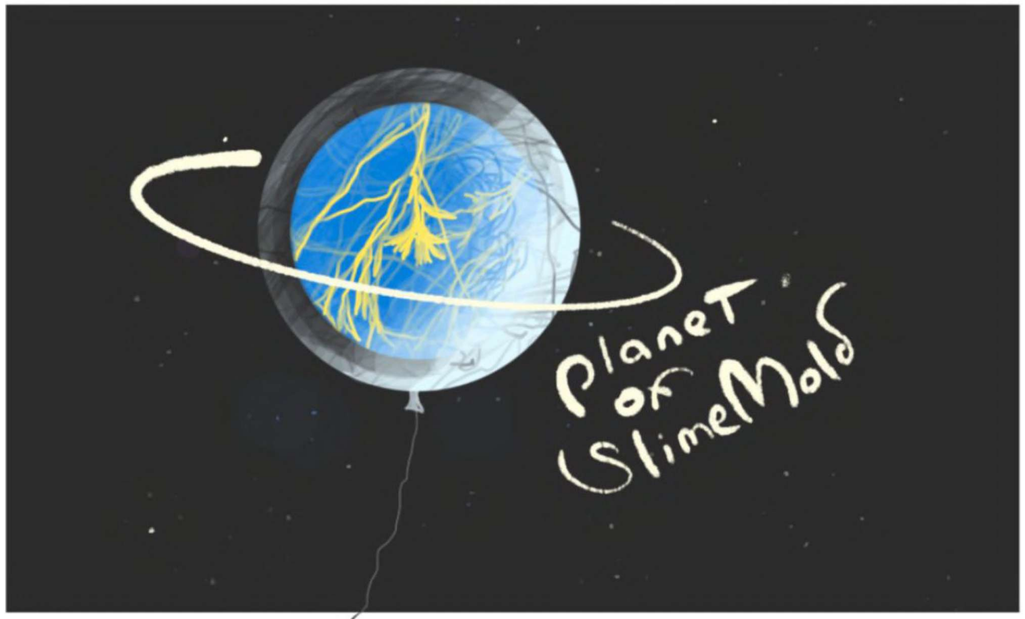


#4

#5

Rice was served as food for a period of twenty days. More water steam was thus produced on the Petri dish, which on the other hand accelerated the moldy food.

Initial Project Idea and Sketch //



I was amazed by the growth rate of physarum polycephalum and its desire for food. It survives by constantly crawling for food, reminds me of humans, in a way, by constantly working to get better living conditions. So my initial idea is to create an „Earth“ and let them survive on their own planet.

The first step is to find the suitable sphere and let slime mould to crawl all over it.

Failed Attempts //

There were four failed attempts in total. It was demonstrated that slime moulds cannot survive in empty water bottles containing carbonic acid, and under conditions such as lack of agar, lack of oxygen, long-term exposure to dry air, and rubbery surfaces on the inside or outside surface of balloons. Then slime mold will blacken and dry out until it dies.

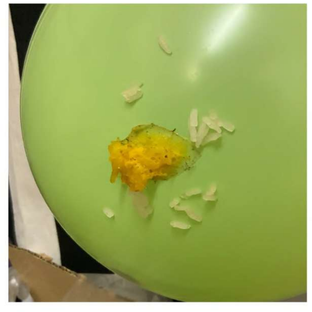






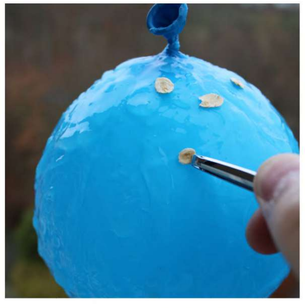




Effective Attempts // 27.11.2021

Try pouring agar on blue balloon and then put oats on the surface. After five hours, the slime mould had crawled.



Final Results //

Due to the thin agar layer and long-term exposure to air, the growth of slime mould was later slowed and the spheres dried out.

Pattern after 1 day // 22:40, 28.11. 2021

Effective Attempts // 27.11.2021

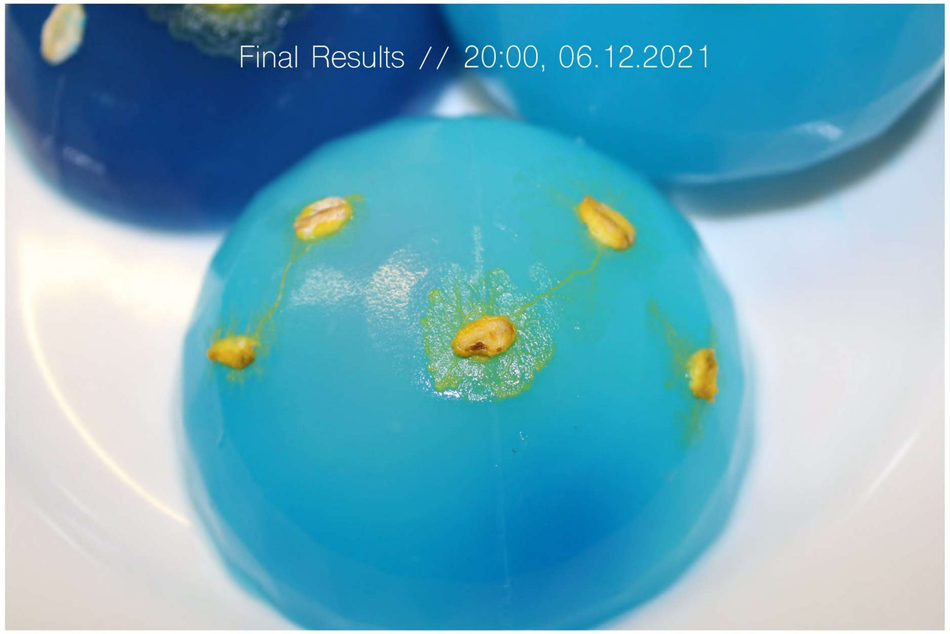
Try again the spheres made with agar. In this attempt the results obtained were obvious due to various survival conditions: air, humidity, medium, food, etc., which are suitable for the survival of slime mould. In addition, in order to convey the concept of "blue planet", food coloring was added to the agar. The slime moulds grew well in the later stages.

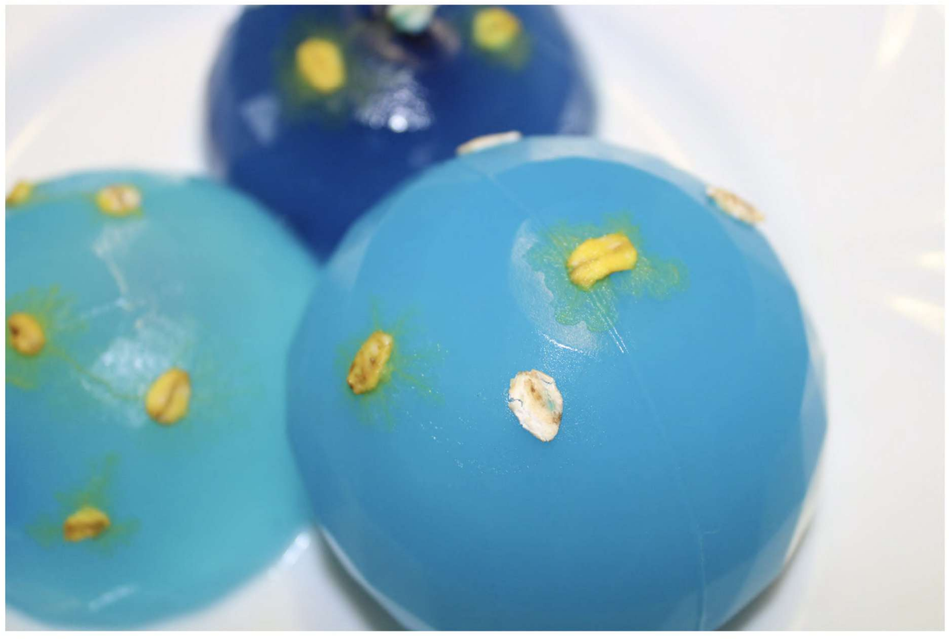
Effective Attempts // 27.11.2021

After five hours, the slime mould had crawled on the surface of agar ball.

Effective Attempts // 20:00, 05.12.2021

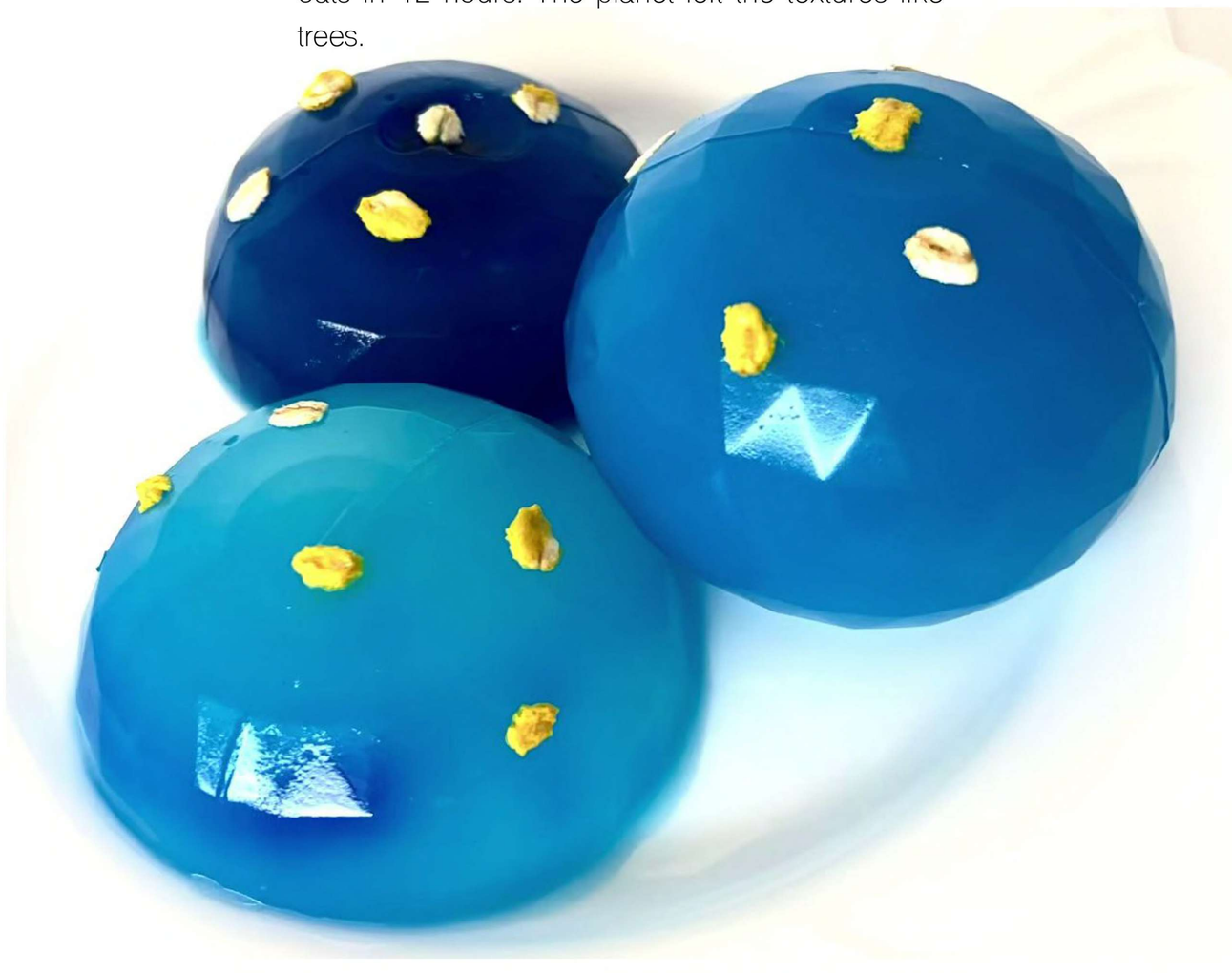
Blue Planet of Slime Mould





Time Lapse c.a.12 hours // 06.12 -- 05.12.2021

The slime mould landed for the first time on the blue planet, achieving a crawl and swallowing oats in 12 hours. The planet left the textures like trees.

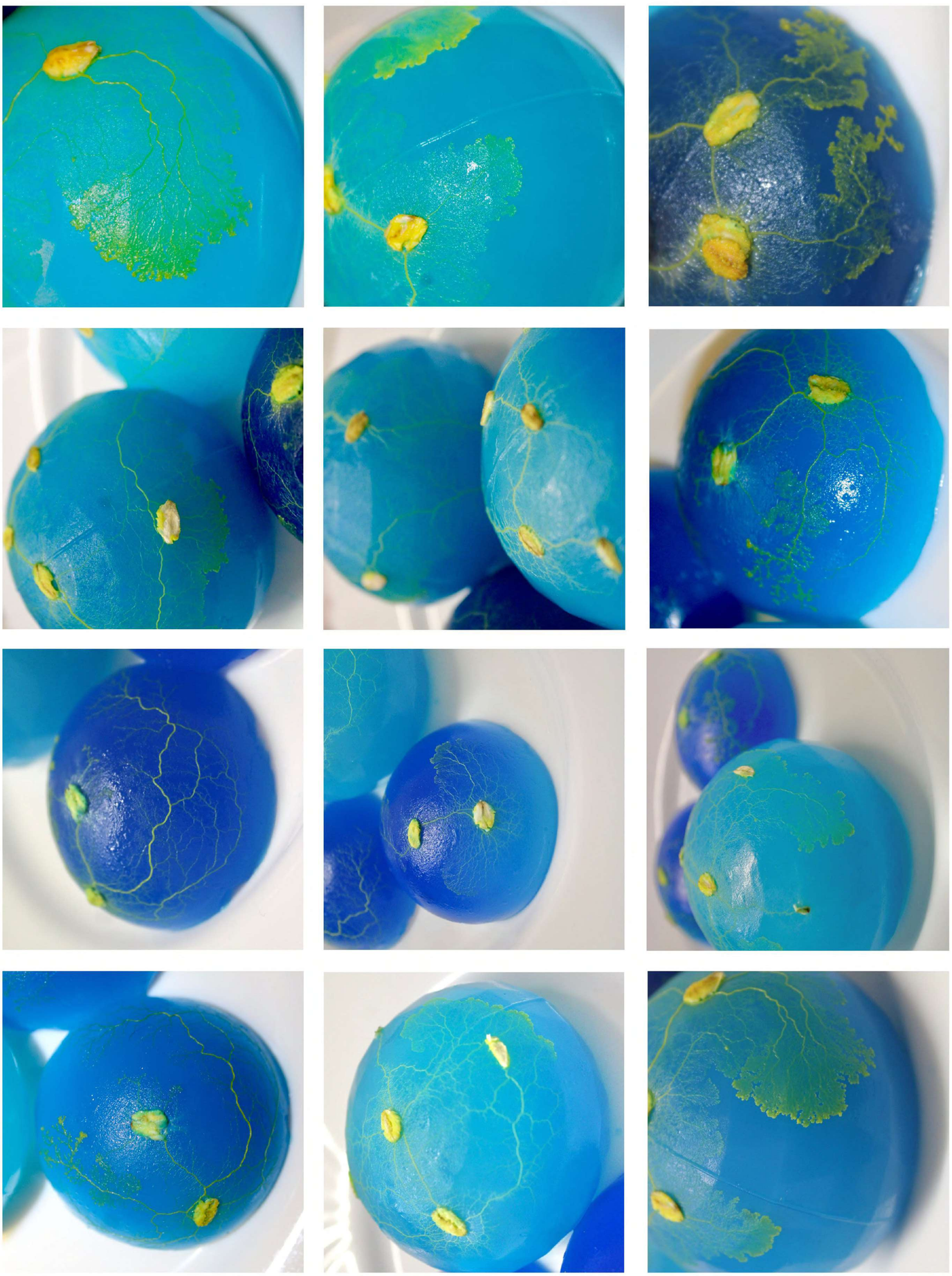


https://www.youtube.com/watch?v=r828_4tVc40

https://www.youtube.com/watch?v=6G8Hc8MdbvM

Final Results // 15:10, 07.12.2021

The day after the slime moulds landed on the blue planet, the individual slime moulds merged with each other to form a dense network of rivers, and the tree-like patterns became larger.



Final Results // 07:55, 08.12.2021

Slime mould landed on the third day of the blue planet, the texture like dense blood vessels almost to cover the entire blue sphere.The yellow tentacles appeared more and more obvious and were struggling to swallow food and crawl.

Gallery // 15:10, 08.12.2021

Gallery // 15:10, 08.12.2021

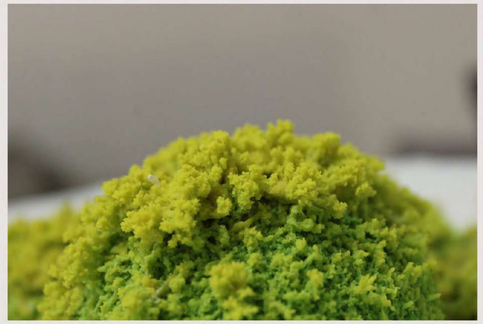
Effective Attempts // 11:49, 14.12.2021

It has been on the planet for 10 days. Try to give oatmeal for more nutrition. They are making the boundaries of the sphere blurred by propagation and seem to spread to a larger space.

Final Results // 00:47, 15.12. 2021

Final Results // 16:40, 15.12.2021

Due to the lack of survival space and food shortage, the huge slime mould has crawled in all directions, showing radial patterns on the plate. On the surface of the planet, the tentacles of slime mould are crowded together as if they were small hills.



Final Results // 07:00, 16.12. 2021

The tentacles fractured and dried up.

Effective Attempts // 23:21, 07.12.2021

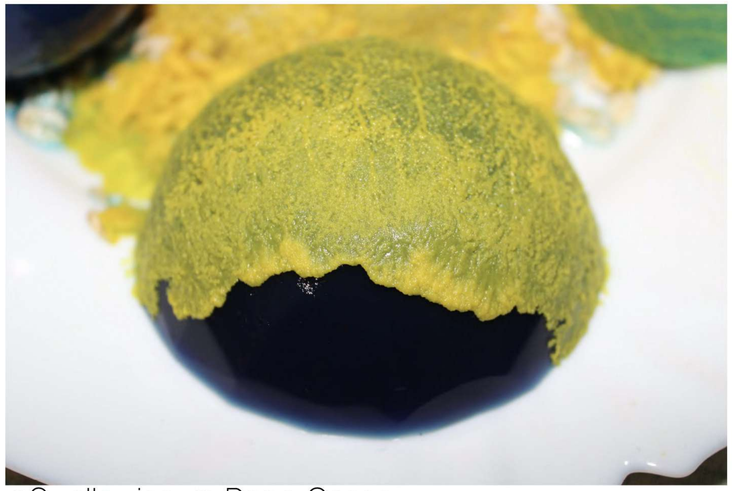
https://www.youtube.com/watch?v=gkHzxJy4Q1M

Effective Attempts // 23:20, 07.12.2021

The white agar ball made on November 27th was covered with yellow slime moulds after about 10 days. Then a few blue agar balls were placed next to the initial agar ball and interestingly, the slime moulds extended their tentacles to these blue balls.

Since the initial agar ball was covered with well-developed slime mould, after placing the blue balls, the slime mould swallowed the spheres with almost crazy speed. And the slime mould showed different patterns and growth states on the new blue spheres.

Gallery // 23:21, 07.12.2021



#Swallowing # Deep Ocean

Planet of Physarum Polycephalum // Gallery 1

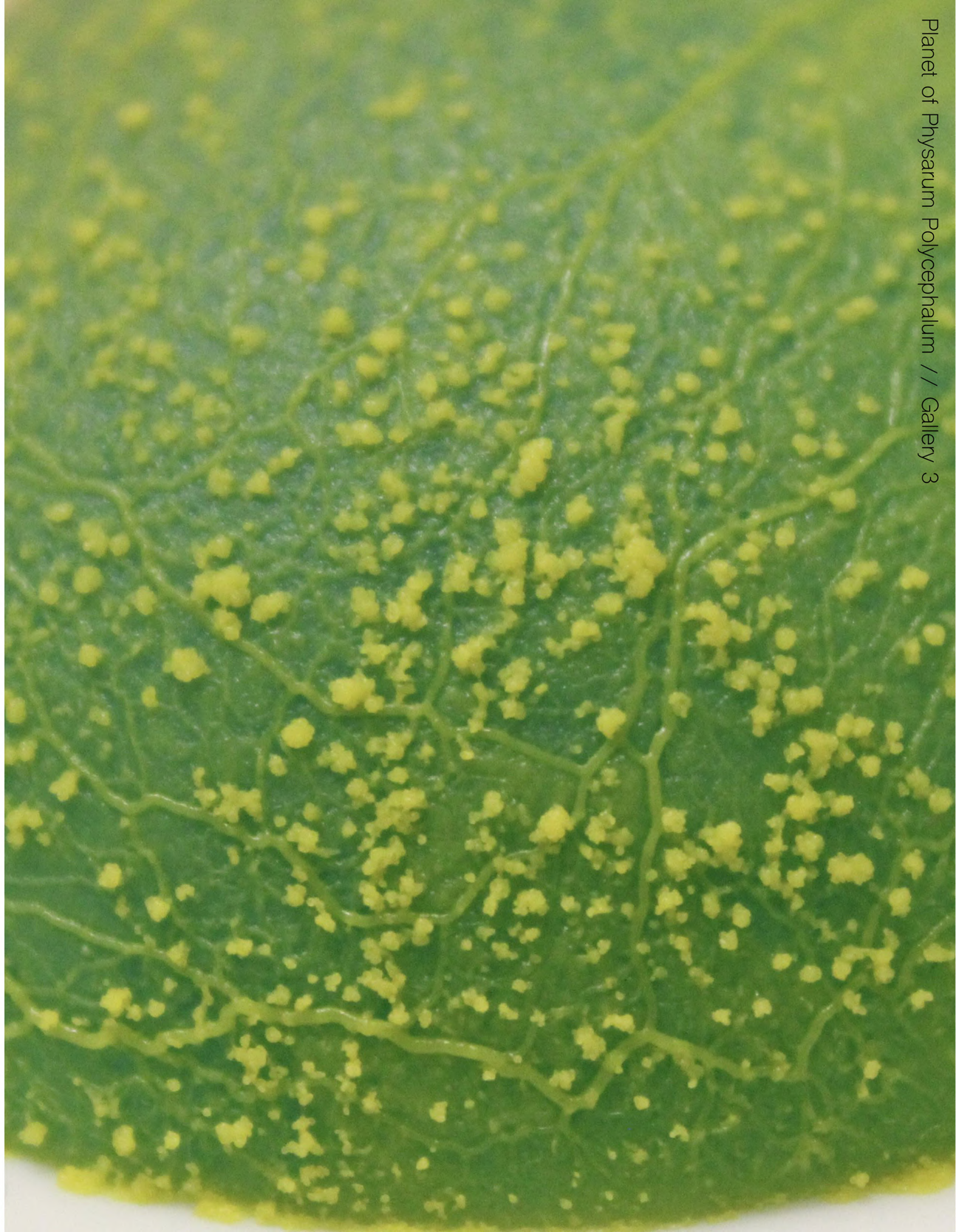
Gallery // 23:21, 07.12.2021

#River #Blood Vessels

Planet of Physarum Polycephalum // Gallery 2

Gallery // 15:13, 07.12.2021

#Tree #Branches



Planet of Physarum Polycephalum // Gallery 3

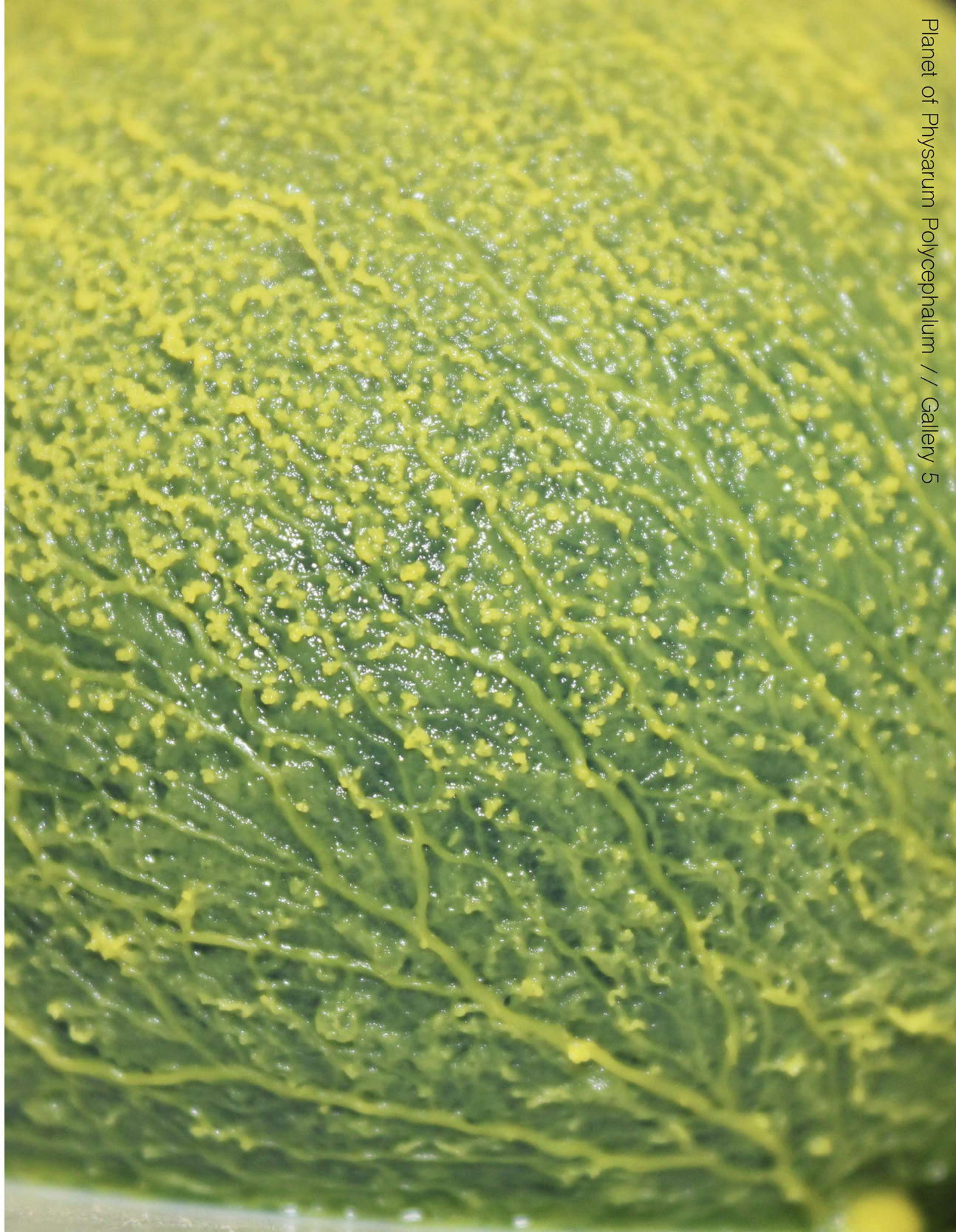
Gallery // 07:51, 08.12.2021

#Network

Planet of Physarum Polycephalum // Gallery 4

Gallery // 07:51, 08.12.2021

#Network



Planet of Physarum Polycephalum // Gallery 5

Gallery // 17:31, 08.12.2021

#Grassland

Planet of Physarum Polycephalum // Gallery 6

Gallery // 17:22, 09.12.2021

#Garden

Planet of Physarum Polycephalum // Gallery 7

Gallery // 06:26, 10.12.2021

#Forest

Planet of Physarum Polycephalum // Gallery 8

Gallery // 10:12, 10.12.2021

#Crawling #Propagation

Planet of Physarum Polycephalum // Gallery 9

Gallery // 19:35, 10.12.2021

#Crawling #Survival #Escaping

Planet of Physarum Polycephalum // Gallery 11

Gallery // 17:30, 12.12.2021

#Getting old

Planet of Physarum Polycephalum // Gallery 10

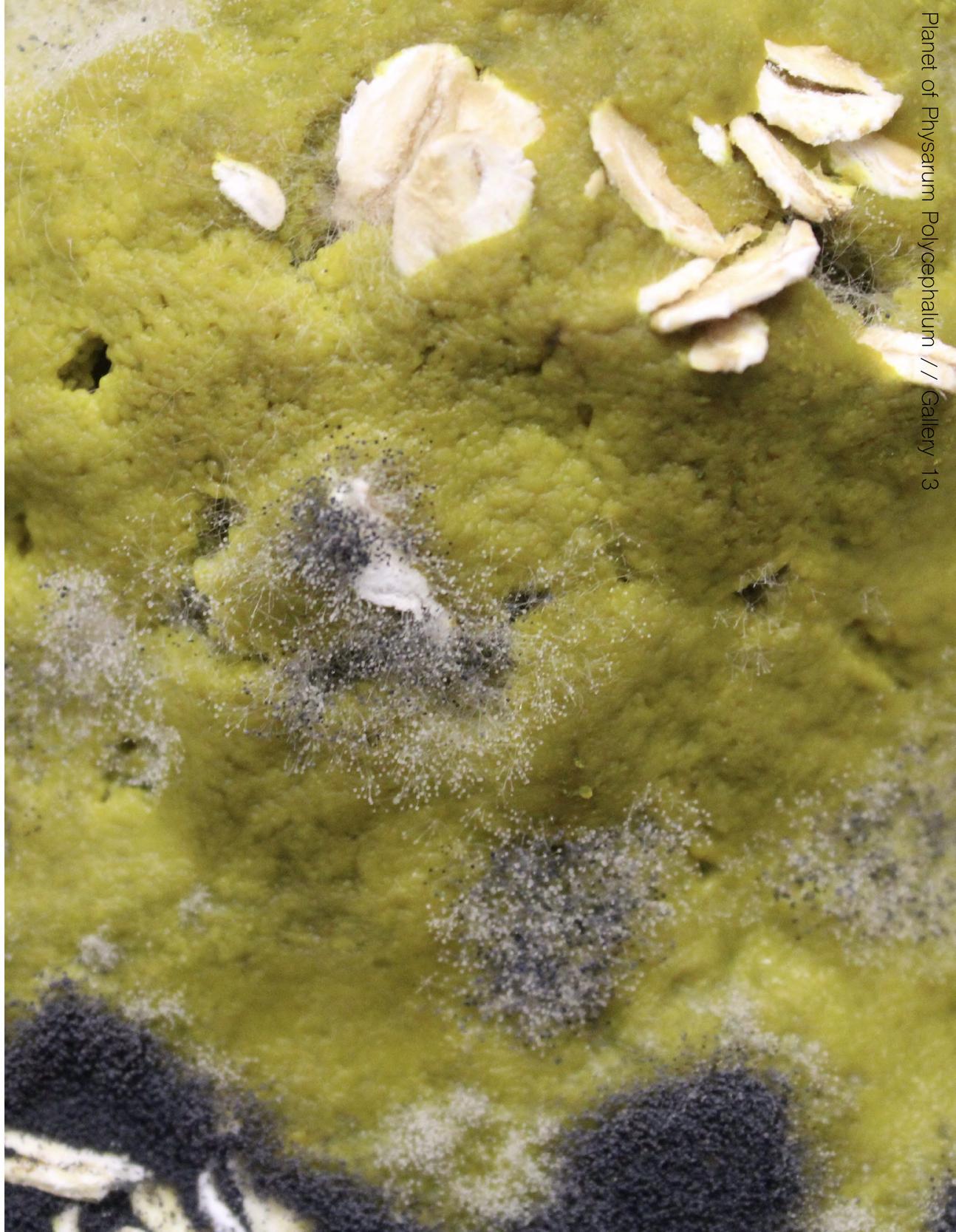
Gallery // 07:15, 14.12.2021

#Moldy Hill

Planet of Physarum Polycephalum // Gallery 12

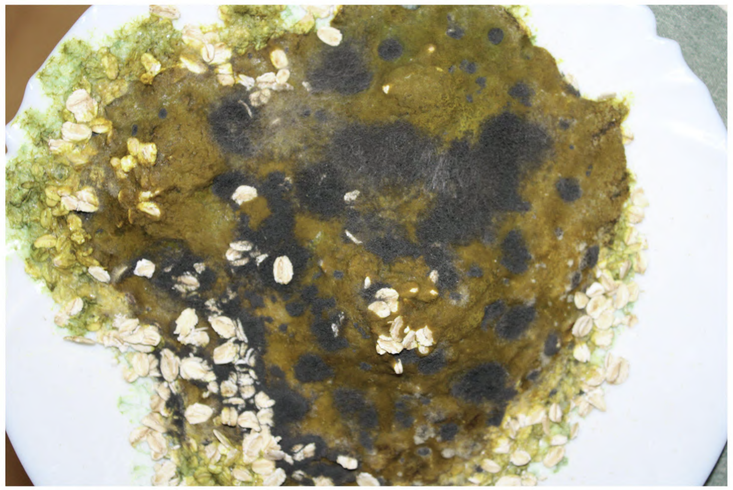
Final Results // 07:10, 16.12. 2021

#Moldy # Getting Ill

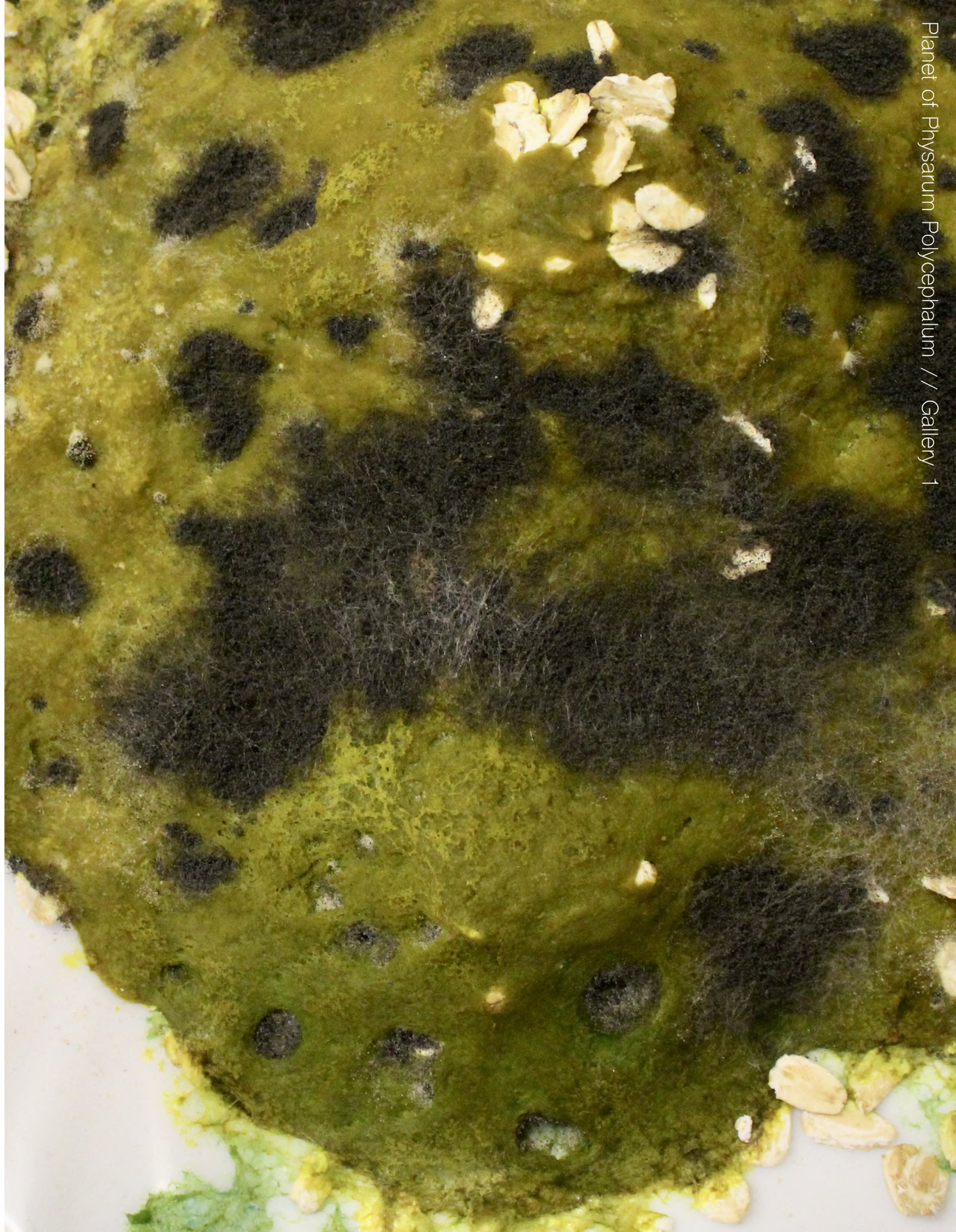


Planet of Physarum Polycephalum // Gallery 13

Gallery // 16:00, 19.12.2021



#Moldy #Death



Planet of Physarum Polycephalum // Gallery 1

Conclusion

In the nearly two months I have been feeding slime mould, and also seen this unicellular organism grow from a very small piece to a strong size. In order to have food, propagation, survival and space, it has made a constant effort to crawl forward.

After several failures in the pre-experimental stage, the slime mold planets were finally built successfully. In addition to the numerous images documenting the growth process of slime mould with aesthetic value, it is more worthwhile for me to associate that, as creatures on the planet, each one is struggling to survive, just like us who live on the earth.

20.12.2021

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