

Microbiology labpaq assignment



**ASSIGN
BUSTER**

Describe the growth you observed in each of your samples: Soil: I chose an area of soil outside of my apartment to do my soil sample. I noticed that there were a few prominent growth in this dish. The majority of them seemed to grow in a snowflake shape and were mainly white. Whether they were different types of microbes or just one, I am not sure. There was one growth that had a black center and a white border that was shaped like a snowflake.

Air: I left the dish uncovered in my kitchen and the growth was interesting.

I noticed that there were three distinct microbial growths that were prominent along with a small smattering of white along the Petri dish. There was one growth that was a dark grey color with a mottled appearance, another that was a white color with a mottled appearance, and finally one that was a tan color with a bubbly appearance. Water: There is a small and very stale pond near my house that I took the water sample from. This was by far the most disgusting of the three observations. The growth I observed looked like a very dark Picasso painting.

There was a black colored colony that had a fuzzy appearance, there was a dark green colored colony that looked wrinkled and somewhat mottled, there was a colony with a black center and white surrounding it with a wispy appearance, and there was a white colony with a very feathery appearance.

4. What were the differences between the growths in each plate? The similarities? The differences in the growth plates is that each of the three environments had their own bacteria that were specific to it. It seems as if the water sample had the most growth due to the fact that it was continually exposed to the elements and people.

The soil one seemed as if it may have some fungal microbes due to the snowflake like appearance. There were similarities between the soil plate and the water plate. It could be that the droplets from the water reached the soil area and that their microbes could be colonizing there. I saw no similarities between the air plate and any of the other two. 5. What is the difference between an autotroph and a heterotroph? The difference between an autotroph and a heterotroph is that an autotroph is capable of deriving its energy from light using photosynthesis or the oxidation of reduced organic or inorganic molecules.

Heterotrophs are not able to produce their own food and are required to feed on other organisms in order to obtain their energy. 6. Define the following terms: Photoautotroph – Capable of using light as an energy source and CO₂ as a carbon source Photoheterotroph- Uses light as an energy source and reduced organic compounds as a carbon source Chemolithoautotroph- Uses inorganic chemicals as an energy source and CO₂ as a principal carbon source Chemolithoheterotroph- Uses organic compounds as an energy source as well as a carbon source. 7.

What is nitrogen fixation? What role do microbes serve? Nitrogen fixation is a process where atmospheric nitrogen is converted into a useable form of nitrogen (ammonia). Microbes serve a role in nitrogen fixation because they are the only organisms capable of performing this process. 8. Define the following terms: Capsule- Tube like structures with a rigid cell wall that protects the cell membrane Murein- A structure that is composed of intertwined thread-like peptidoglycan.

This is the primary structural component of the fungi buried in the soil/organic matter that the fungus is living on. Separate- Also known as cross-walls, they divide the hyphae into sections giving them the possibility of containing more than one nucleus in addition to the usual organelles found in these cells. 9. What type of morphological features were you able to see in your fungal wet mounts? In your stained preparations? In the wet mount, it was very obvious that the organisms growing on the food were of fungal origins.

There was a network of hyphae that was branching out and tangled up around the slide. In the stained preparations, I could see the individual sections that are divided by the septa. Within these sections, if you went up to a higher powered lens, you could see dark little spots which I am assuming are the nuclei. I also saw that there were tiny little buds that were present throughout the hyphae tangle. 10. List the four main classifications of fungi and describe each group. 1. Chytridiomycota- The smallest and simplest fungi.

They are considered the ancestors of modern fungi and are primarily aquatic organisms. The majority are decomposers but some can be plant pathogens.

2. Zygomycota- Mostly terrestrial fungi that live in soil or decaying plant and animal matter. They are mainly parasites to plants, insects, and animals.

3. Ascomycota- The largest and most diverse group to date that includes the fungal element of lichen and many edible fungi (morels and truffles).

4. Basidiomycota- Producers of spores on a stick or club-like structures and are known as club fungi. Some club fungi are edible but the majority are poisonous. 11. What fungi would you find in the group Glomeromycota? Glomeromycota has fungi that have lost the ability to reproduce sexually. 12. What is a

lichen? Lichens are the symbiotic relationship between a fungus and an algae where the fungus is usually an accommodate and the algae is usually a contractible. The fungal partner can't grow without the algae. 3. Define the following terms: Parasite- An organism that lives off of another living organism without killing or helping the host organism in any way. Sappers- An organism that uses dead organic matter as a food source.

Naturalistic Organism- Organisms that live in close association with another type of organism in a mutually beneficial relationship such as lichens. 14.

What are the five common features of fungi? Fungi are heterozygous and depend on other organisms as a carbon source. The structure of fungi is generally found as a unicellular fungi or as a McCollum. Most nuking have cell walls that are primarily composed of chitin. Fungi acquire their food through absorption which and transport their nutrients from substrate directly through their cell walls.

Most fungi reproduce through sexual and asexual routes. Which route is used is determined by the environmental conditions. Describe the growth on each of your substrates, what were the similarities? The differences? I chose bread, a strawberry, a slice of tomato, and a square of cheese as my growing substrates. The similarities amongst them was in the general appearance of the mold. Each specimen had mold that was fuzz in appearance and seemed to branch away from a central location and spread throughout the food.

A white color was seen in each of the specimens as well. However, the bread mold had black in it as well as the white which makes me believe that it has different fungi that prefer bread to the other foods. The cheese, strawberry,

and tomato all had white fuzzy mold on it. The cheese's mold was more dispersed throughout the food in a random pattern. The strawberry and the tomato mold looked very similar to one another and grew rather aggressively and covered the whole specimen.