

Fungus Growth on Foods

Objective: To culture fungi on a variety of foods to evaluate the conditions that support the best growth and to observe the structure of fungi.

Materials:

petri dishes medicine dropper binocular microscope
microscope slides paper towel parafilm
forceps compound microscope
2 types of food (bread, fruit, and cooked rice work well but you can use anything you like)

Procedure

1. Obtain two petri dishes and label the bottom with your name and that of your partner.
2. Cover the inside of the bottom half with paper towel. Be sure that the paper towel does not stick out of the dish.
3. Using a medicine dropper, dampen the paper towel to provide water to support the growth of any fungus. The paper towel should be completely soaked but do not have any pools of water in the dish.
4. Choose two foods and place a piece of each in three different petri dishes. Using a medicine dropper, moisten them with water but do not soak. Allow the food to stand in the uncovered dishes for 10 minutes.
5. Place the covers on the dishes and seal the top and bottom together with parafilm to prevent drying out.
6. Store in a cool, dark location for 3-5 days.

Q1. Write a hypothesis about which food will best support the growth of fungi.

7. Prepare a data table to record the growth of the fungal colonies on each food type. Observe the dishes each day during that period. Include observations such as colors, physical appearance of any colonies, size of colonies, variety of fungi, *etc.* A suggested format for your table is:

Day of observation	Color of fungus		Physical appearance		Size of fungus	
	Food 1	Food 2	Food 1	Food 2	Food 1	Food 2

8. Compare the growth of your fungus to that of other groups.
9. IT COULD BE DANGEROUS TO OPEN THE CULTURES. Some people are allergic to spores and the cultures will often have a quite unpleasant odor. Using the binocular dissecting microscope, observe the fungi on each of your foods and record your observations of color, shape, texture, *etc.* If there is too much water on the cover of the petri dish you may have to remove it. ASK FOR HELP.
10. Carefully lift up one edge of your petri dish and, using forceps, obtain a sample of black bread mold (*Rhizopus stolonifer*) from your culture. Close the dish immediately. Prepare a wet mount and locate hyphae, sporangia, water bubbles, and spores). You will be asked to identify these as part of your mark. If you do not have any *R. stolonifer*, ask around - someone will.

Questions:

2. On which day did fungus first appear in each of the dishes?
3. a) Once fungus appeared, what did you notice about its growth rate?
b) For the black bread mold, what would be the advantage of the fungus having so many sporangia?
4. Did your observations support your hypothesis?
5. Compare the extent of growth of fungus on each food. Provide a possible explanation to account for these differences in growth.
6. Are fungi the only organisms that could be present on your samples? Explain.
7. Based on the results here, what environmental conditions would you recommend in order to prevent fungal growth on food?
8. How can you explain the appearance of mold on foods even in a very clean kitchen?
9. Why is it important that you were able to identify water bubbles on your slides?