

Grow Your Own Microbes With A Homemade Growth Medium

Scientists use commercial media called agar to grow microorganisms. It provides the right amount of nutrients to the microbes to allow optimal growth. This is a way for you to make your own medium similar to the agar scientist use in their petri dishes.

Materials

- 1 envelope plain gelatin
- 1 cup cold water
- 2 teaspoons sugar
- 1 teaspoon beef or chicken bouillon granules or 1 cube
- 6-10 foil cupcake cups or make your own with foil
- Muffin pan or small containers to hold the cupcake cups or foil (support)
- Paper towels or foil
- Measuring spoons
- Zip lock sandwich bags
- Qtips or cotton ball
- Tape and Pen or marker for labeling bag

Procedure

1. Line your muffin tin or small containers with the foil cupcake cups or foil. Make sure there are no holes or tears.
2. In a saucepan mix the gelatin, water sugar and bouillon
3. Bring to a boil slowly stirring constantly
4. Let cool and fill the foil cups about 1/3 full
5. Cover them with paper towels or foil to prevent contamination
6. Place them in the refrigerator and chill until solid
7. Once solid remove the cups from the container without touching the gelatin and place them in separate zip lock bags.

You have just made your own growth medium! Now you can use it to collect and grow microorganisms! When we transfer microbes to the medium it is called inoculation. The gelatin is delicate and when you inoculate it or touch it, you don't want to break the surface, so be gentle.

Taking Microbial Samples

1. Label 1 bag **Dirty Fingers**. Press the top of one of the medium cups gently with your unwashed fingers. Place the cup in the bag and seal it.
2. Label 1 bag **Washed Fingers**. Wash your hands and fingers well. Press your clean fingers on a second medium cup and then place it in the bag and seal it.
3. Find a surface you want to test like a sink. Label a bag with what you want to test. Take a clean qtip or cotton ball and wipe the surface a few times. Next wipe a medium cup to transfer the bacteria from the sink to the growth medium. Place it in the labeled bag and seal it.
4. Choose different items you want to test and r
5. Repeat the process. Always label and make sure the bag is sealed.
6. Once you have completed inoculating all your growth medium cups. Place the sealed bags in the refrigerator or on a counter for faster growth. It will take time to grow your colonies. Check every day. You should have good growth by day 3. **DO NOT OPEN THE BAGS!** Observe your colonies by looking through the bags.
7. Use the following table to make notes on your colonies

Sample	How many colonies do you see?	How many different kinds?	First Describe your favorite 3 colonies	Second	Third	Interesting Notes
Dirty Fingers			Size: Color: Shape:	Size: Color: Shape:	Size: Color: Shape:	
Clean Fingers			Size: Color: Shape:	Size: Color: Shape:	Size: Color: Shape:	
Sink			Size: Color: Shape:	Size: Color: Shape:	Size: Color: Shape:	
			Size: Color: Shape:	Size: Color: Shape:	Size: Color: Shape:	
			Size: Color: Shape:	Size: Color: Shape:	Size: Color: Shape:	
			Size: Color: Shape:	Size: Color: Shape:	Size: Color: Shape:	

Once you are done, place SEALED bags in a large bag like a grocery bag. Tie or close off the bag and throw it away.

Notes:

Every colony started from a single microscopic microorganism. They multiply fast so each colony you see is thousands of microbes. Did anything surprise you about the microbes and their growth?

How did the experiment between the number of microorganisms on dirty fingers compare to the number on the clean fingers?

Why is it important to keep the bags sealed after you inoculate the medium?

You are now a junior microbiologist! There are millions and millions of microbes out there for you to study and see if they are helpful or harmful to us. We use beneficial microbes every day. You just took the first steps to an amazing career!