

Classroom Bacteriological Examination of Water Samples Using Gelatin

Bacteria are microscopic organisms that are common in our environment. Most bacteria are harmless. They help in the digestion of food, and play an important role in keeping the environment properly balanced. Some bacteria can cause disease in humans, animals, and plants. These bacteria are often called germs.

Science knowledgeable adult supervision is necessary throughout this experiment.

SUPPLIES NEEDED:

- Samples of water (tap water, well water, pond water, river water, rain water, etc.)
- Beef Broth
- Knox Gelatin (1 oz. pkg.)
- Boiling water
- Eight clean, (preferably sterile) glass or plastic petri dishes.

MEDIUM PREPARATION AND THE CULTURING OF BACTERIA:

- A. Dissolve 1 packet (1/4 oz.) of Knox gelatin in 60 milliliters (1 oz.) of boiling water, and 1 oz. of beef broth.
- B. Pour the dissolved, liquid gelatin into the petri dishes to a depth of about 1/4 inch. Cover the dishes with their lids and allow the medium to cool.
- C. Reserve one plate for a negative control.
- D. Inoculate the gelatin medium by placing 3-drops of sample water onto each of the remaining cooled plates. Carefully smear the water into a thin film using an alcohol-dipped and flamed glass rod. (A bent wire or a metal spatula may also be used.)
- E. Incubate the petri dishes at room temperature for 4-6 days.
- F. Once the incubation period is done, visually analyze the petri dishes. Look for dots on the gelatin surface. These dots are mounds of bacteria that are called colonies by microbiologists.

Do not touch the colonies with your fingers. Most bacteria are beneficial to the environment and to people, however some may cause disease.