Soil Sample Plating Protocol

December 25, 2025

0.1 Prepare soil solutions

1. Use a sterilized spoon to collect soil from four corners and the center of the plot.
2. Mix the soil in a sterilized tube and label the tube.
3. After bringing the soil back to the lab, mix the soil well using a vortex.
4. Weigh 1 g of soil and add it to another sterilized tube.
5. Add 9 ml of distilled water; this will be the 10^{-1} soil solution.
6. Mix the soil solution well using the vortex, then let it sit for a few minutes until the top layer of the liquid is relatively clear.
7. Use a pipette to take 1 ml of liquid from the 10^{-1} soil solution and add it to another sterilized tube. Add 9 ml of distilled water; this will be the 10^{-2} soil solution.
8. Use the same method to dilute the soil solution until obtaining the 10^{-6} soil solution.
9. Keep the soil solutions in cold storage if not used immediately; the soil solutions should be used within 48 hours.

0.2 Plating

1. Prepare agar medium with antibiotics and autoclave it to sterilize.
2. Pour plates while the agar is still warm but not too hot.
3. Allow the plates to cool completely; do not move the plates after pouring.

4. Use a pipette to dispense 1 ml of soil solution onto the surface of the agar. Add 3–5 sterilized glass beads and gently roll them across the agar surface to ensure even distribution of the liquid. Pour off the beads and any remaining liquid.

5. Put the lid on immediately and label the plate.

6. Seal the plates with Parafilm.

7. Incubate the plates upside down at room temperature for at least 3 days. (If the plates are accidentally not kept upside down and condensation forms on the lid, a warm water bag can be made by adding warm water to a Ziploc bag. Place the plate upside down on top of the warm water bag for a few minutes, then perform observations quickly.)