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Through a microbiologist's eyes: optimal time to add honey to tea

Preparation of a fresh bacterial liquid culture

This procedure should be carried out by a teacher or trained laboratory technician before the lesson. Use only an approved Biosafety Level 1 (BSL-1), non-pathogenic teaching strain permitted by local and institutional safety procedures.

Materials

For each group:

- One Petri dish containing an approved BSL-1, non-pathogenic teaching strain, such as Escherichia coli BL21(DE3), where its use is permitted by local and institutional safety procedures.
- One sterile test tube containing 0.5 ml of sterile liquid nutrient medium
- Sterile disposable inoculating loop or reusable metal inoculating loop
- Permanent marker
- Personal protective equipment
- Surface disinfectant
- Biological-waste container
- Optional: Bunsen burner or spirit lamp, if permitted
- Optional: incubator set to 37°C

Procedure

1. Label a sterile test tube containing 0.5 ml of sterile liquid nutrient medium with the bacterial strain, date, and group name.
2. Disinfect the work surface. If permitted, work near a Bunsen burner or spirit lamp, keeping flammable materials away.
3. Use a sterile disposable inoculating loop or flame-sterilise a reusable metal loop until red hot and allow it to cool.
4. Open the bacterial culture plate and test tube only briefly.
5. Using a sterile loop, pick a small amount of bacterial growth from the culture plate, avoiding contact with the agar surface.
6. Transfer the bacterial material into the liquid medium and mix gently. Avoid vigorous shaking and aerosols.

7. Close the test tube and Petri dish immediately. Sterilise or discard the loop as appropriate.
8. Incubate the tube for approximately 2–4 hours at 37°C, or longer at room temperature.
9. The culture is ready when the medium becomes slightly cloudy (figure 1).
10. Use the culture immediately. If necessary, keep it tightly closed at approximately 4°C and use it within 24 hours.

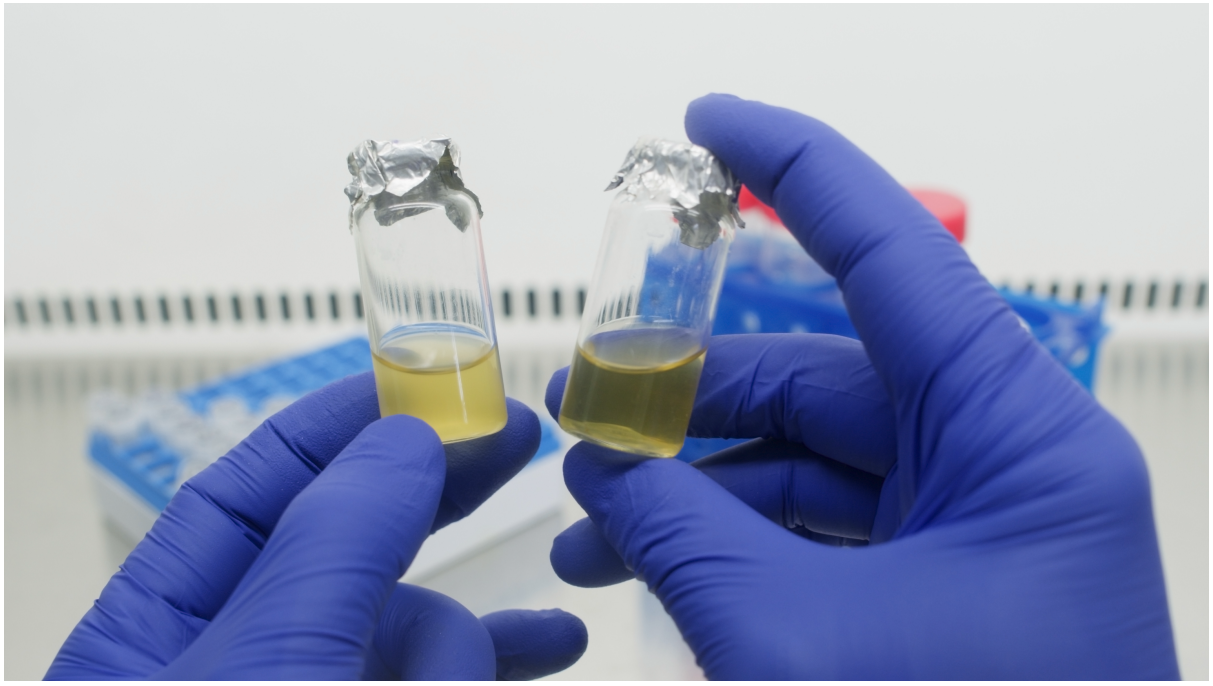


Figure 1: Comparison of sterile liquid nutrient medium before inoculation and turbid medium after bacterial growth
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