

DNA Extraction

Purpose:

- ◆ To extract DNA from raw wheat germ

Materials:

- ◆ raw wheat germ
- ◆ 50 ml beaker
- ◆ graduated cylinder
- ◆ hot water (50-60°C)
- ◆ detergent
- ◆ pipette
- ◆ rubbing alcohol

Procedure:

1. Place 1 gram of raw wheat germ in a 50 ml beaker.
2. Add 20 ml of hot (50-60°C) tap water and mix constantly for 3 minutes.
3. Add 1 ml of detergent and mix gently every ½ minute for 5 minutes. DO NOT create foam.
4. Use a pipette to remove any foam from the top of the solution.
5. Tilt the beaker at an angle. SLOWLY pour 14 ml of alcohol down the side so that it forms a layer on top of the water/wheat germ/detergent solution. DO NOT mix the two layers.
6. Let the beaker sit for a few minutes. DNA will begin to appear where the water and alcohol meet.

Analysis Questions:

1. Draw a picture of a wheat germ cell and label the cell wall, cell membrane, nucleus, and DNA.
2. Thinking about the structure of the cell membrane/nuclear membrane, what was the purpose of the detergent?
3. Why does the water temperature have to be between 50-60°C?
4. What would have happened if we mixed the alcohol into the solution instead of gently layering it on top?