**Lab K: Isolating DNA**

**Materials:**

Water

Mild Dishwashing soap

Non-iodized salt (table salt)

Strawberries (preferably fresh, but frozen will work)

Ziploc freezer bag

Cold rubbing alcohol

125 mL Flask

200 mL beaker

50 mL graduated cylinder

10 mL graduated cylinder

Wooden stir stick

Stopwatch or timer

Cheesecloth

Funnel

Rubber band

**Procedure:**

1. **Procure all the needed materials from your kit, and the few items you need to supply from home.**
2. **In a 200 mL beaker, prepare an extraction solution by mixing 1.5 mL of mild dishwashing detergent with 120 mL of water and a pinch (about .5 mL) of salt (NaCl). Slowly and thoroughly mix the extraction solution with a stirring rod, avoid the formation of soap bubbles. The soap in the extraction solution helps dissolve the cell membrane, and the salt serves to remove proteins bound to the DNA. Soap also keeps the proteins from precipitating in the alcohol used in a later step.**
3. **Remove and discard the sepals (green tops) of the fresh strawberries. If frozen strawberries are used, let them thaw to room temperature. Place the strawberries into a Ziploc bag. Seal the bag, and with your fingers smash the strawberries thoroughly for at least 3 minutes.**
4. **Reopen the bag and pour about 15 mL of the extraction solution from step 2 into the bag. Reseal the bag, and smash the strawberry extraction solution for 2 minutes, trying to avoid making soap bubbles.**
5. **Insert a funnel into your 125 mL flask. Place a piece of cheesecloth over the funnel with a rubber band and pour the strawberry extract into the flask. Pour about 10 mL of the filtered strawberry extract into your 50 mL graduated cylinder.**
6. **Tilt the cylinder at a 45⁰ angle. Pour 15mL of the ice-cold rubbing alcohol slowly down the side of the cylinder. Do not shake or mix the alcohol with the filtered strawberry extract. The alcohol will form a layer on top of the solutions. Alcohol will cause the DNA to precipitate out of the solution.**
7. **Let your cylinder sit for about 1 minute. You should observe a white cloudy or stringy mass of DNA on top of the strawberry extraction solution.**
8. **Using a clean wooden stir stick, stir the DNA, spool it (wind it around the stir stick) and observe it.**

**Check Your Understanding:**

What is the purpose of the soap in the extraction solution?

What is the purpose of the salt in the extraction solution?

What does alcohol do in this exercise?