

DNA Extraction

Materials needed:

- 1 frozen strawberry
- 1 zip lock bag
- extraction buffer (made with shampoo without conditioner, salt, and water)
- 1 test tube
- coffee filter and funnel (cup)
- 1 20 ml beaker (cup)
- 95% ethanol (kept in a test tube, on ice)
- 2 pipettes
- 2 micro centrifuge tubes and 2 pieces of string

1. Crush strawberry to break down cell membranes and release DNA from the cell and nuclear membranes.

- Place 1 large strawberry in the zip lock bag. With the heel of your hand, crush the strawberry until you have a smooth paste.
- Add an amount of extraction buffer **equal to the amount of crushed strawberry** to the bag, and mix well.

2. Filter strawberry-extraction buffer mixture.

- Place coffee filter over and somewhat down in the cup
- Filter the strawberry-extraction buffer mixture by pouring into the filter (being very careful that it flows “through” not around the filter).
- You should have plenty of filtrate – pour 10 ml into a cup

3. Extract strawberry DNA.

- **S-L-O-W-L-Y** pour about 10ml of **ICE COLD** ethyl alcohol down the side of the beaker so it forms a layer on top of the strawberry mixture.
- The DNA should begin to precipitate out immediately into the ethyl alcohol. DNA looks like white stringy material.
- Gently tilt the beaker to increase the surface area of the strawberry buffer exposed to the ethyl alcohol.

4. Make DNA necklace

- Carefully pipette the DNA from the ethyl alcohol into a small centrifuge tube.
- Be careful to only extract the strawberry DNA – not the strawberry mixture.
- Fill the tube to overflowing with ethyl alcohol to preserve the DNA
- To complete the necklace, fold the cap loop over the string and tie the ends of the string together.

To extract your own DNA:

- Swish 2 ml of Powerade or Gatorade around in your mouth for one minute (try to gently bite the insides of your cheek to release extra cells).
- Place the Gatorade/cell solution in a clear cup
- Add an equal amount of buffer extract (1tsp salt, 2 TB shampoo without conditioner, and 1 c water)
- Gently stir
- Add an equal amount of **ICE-COLD** ethyl alcohol, poured **SLOWLY** down the side of the cup.