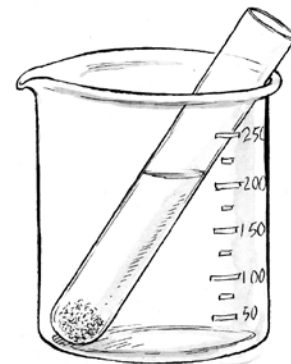


Extracting DNA from Bananas

All living things, including plants, reproduce by passing deoxyribonucleic acid (DNA) from parent cells to offspring cells. DNA is the genetic information that provides a blueprint for an organism's growth and development. Scientists are constructing a more accurate plant kingdom family tree by analyzing DNA from different plants, noting differences and similarities, and grouping the plants based on their DNA relatedness. In this activity, you will extract and observe DNA from bananas.

Procedure

- 1 Put 1 cup of distilled water and one banana in the blender. Blend for 25 seconds. Pour the mixture into a beaker.
- 2 Mix 1 teaspoon of soap and $\frac{1}{8}$ teaspoon of salt in a plastic cup. Add 2 tablespoons of distilled water. Stir **gently** to avoid causing foam. Continue until the soap and salt are dissolved.
- 3 Add 2 tablespoons of the banana mixture to the cup containing the soap solution. Use a spoon to stir the mixture for 8–10 minutes.
- 4 Insert a filter into a clean plastic cup. Fold the top of the filter so that the bottom of the filter is about an inch away from the bottom of the cup. Put a rubber band over the rim of the cup to hold the filter on the cup.
- 5 Pour your mixture into the filter. After 5–10 minutes, some liquid, called the filtrate, should have collected in the bottom of the cup.
- 6 Get a test tube of cold alcohol. Use a pipette or eyedropper to collect your filtrate. Add it to the alcohol.
- 7 Place the test tube with the alcohol and filtrate in a beaker. Let it sit undisturbed for about four minutes. Do not shake it. Watch the white material come out of solution as a precipitate. This is the DNA.
- 8 Dip the glass rod into the tube, slowly rotating it to spool the banana's DNA around the rod. Observe the DNA in the test tube.



Questions

Write your answers on a separate sheet of paper.

- 1 Describe the appearance of the DNA you extracted.
- 2 Summarize the main steps involved in extracting DNA from bananas.
- 3 Do you think your results would be different if you used a vegetable or fruit other than bananas? Explain.