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## **DNA Extraction from Fruits**

### ***Introduction***

DNA as a blueprint of life can be extracted from plant and animal sources. In this activity, you will extract DNA from common fruits, then investigate how it looks like

### ***Objective***

Extract DNA from common fruits

### ***Materials***

- Fresh bananas
- 200 mL Isopropyl alcohol
- 1 tbsp salt
- 10 drops of liquid soap containing sodium dodecyl sulfate
- 100 mL hot water
- 100 mL cold water
- Shot glass
- Blender
- Glasses
- Gauze
- Colander
- Deep dish

### ***Procedure***

1. Prepare a precipitating solution: combine 1 tbsp table salt and 10 drops of liquid soap containing sodium dodecyl sulfate in a glass. Add 100 mL hot water. Stir well
2. Place a peeled banana in a glass. Add 5 tablespoons of precipitating solution and 100 mL cold water. Blend the mixture thoroughly.
3. Filter the puree through several layers of gauze. Carefully add 200 mL ice-cold isopropyl alcohol by pouring the liquid down the side of the glass. Observe the formation of a white mass in the alcohol layer.
4. DNA is a molecule with a complex structure that stores and passes the genetic information of every living organism on Earth from generation to generation. This simple method for DNA extraction is based on the following principles: the liquid soap contains surfactants, which help destroy the cell membranes and nuclei, while sodium ions from the salt bind to the phosphate groups of the DNA molecules, helping isolate

the DNA from the solution. Adding cold isopropyl alcohol reduces the resulting DNA and sodium compound solubility in water. You can also use this method to isolate the DNA of strawberries, peaches, and tomatoes.

### *Conclusion*

- Therefore I conclude that mashing the banana can extract or release DNA. With the help of solution, which are salt, liquid soap (contained sodium dodecyl sulfate), and hot water, it helps to break down cell membranes, release, and bring the DNA together. In order to precipitate the DNA, cold water is essential to come out and be collected. Furthermore, hot and cold water is necessary for the experiment.

### *Post-laboratory Questions:*

- 1. Does DNA have the same structure in different organisms, in this case, in strawberry and banana fruits? Explain why or why not?**
  - All organisms have DNA made similar to nitrogen-based molecules. DNA is made up of four components, which are Adenosine, Guanine, Thymine, and Cytosine. But every organism has unique or different DNA because there have differences in length and sequence of the structure of DNA. In this case, many organisms have dissimilar sets of DNA due to environmental factors and mutations.
- 2. Many of the plants today have been genetically modified by placing a portion of a gene from one organism to another organism. Would you eat food produced in this manner. Why or why not?**
  - From my standpoint, I will not eat a portion of food produced by genetically modified foods. Although World Health Organization allowed the international market to negotiate, still it has side effects. It may cause allergic reactions, loss of nutrition, toxicity, cancer, antibiotic resistance, and immuno-suppression.