

Strawberry Extraction

Wednesday, February 8, 2017 10:39 AM



DNA Extraction from the California Strawberry *Fragaria ananassa*

Introduction

There are hundreds of different strawberry varieties and the chance of our experimenting with the exact species listed in the title is very very low. In California, different species are planted during different seasons, allowing strawberry availability throughout the year. Knowledge of the composition of the cell membrane, DNA structure, and the concept of hydrophobic and hydrophilic interactions, you will isolate and extract the DNA from the California strawberry.

Materials

- zip lock plastic bag
- 1 strawberry
- 10ml DNA extraction buffer
- 2" x 2" cheesecloth (gauze) square
- funnel
- ice cold alcohol
- plastic transfer pipette
- test tube
- wooden splint

Directions:

Part A:

making the DNA extraction buffer (note: this quantity will be enough for your entire lab table)

1. add 5 ml of liquid dish washing detergent to a 100 ml beaker
2. now, add 0.75 g of salt to the same beaker
3. finally, add 45 ml of distilled water



Our mashed strawberries

Part B: extracting the DNA



**Part B:
extracting the DNA**

1. rinse the strawberry with water from the tap and remove anything green (i.e. the stem and sepals)
2. place the rinsed strawberry into a zip lock plastic bag and add 10 ml of the extraction buffer. carefully squeeze and seal the bag tightly, making sure any air does not remain in the bag
3. with your fingers, carefully crush or mash the strawberry against the lab table for about 1 minute (be aware that @mrwong does not like sticky strawberry juice on the lab table!!)



- What purpose does the crushing/mashing serve?

Crushing and mashing puts everything in the strawberry in liquid form making it more vulnerable to alcohol.

- What purpose does the extraction buffer serve?

To extract the DNA.

Part C:
isolating the DNA

1. place the funnel lined with the cheesecloth (gauze) square into the test tube
2. carefully pour the contents of the plastic bag (i.e. the mashed up strawberry and extraction buffer mixture) into the gauze and filter the mixture into the test tube through the gauze
3. fill the test tube with this mixture until it is about 1/4 filled

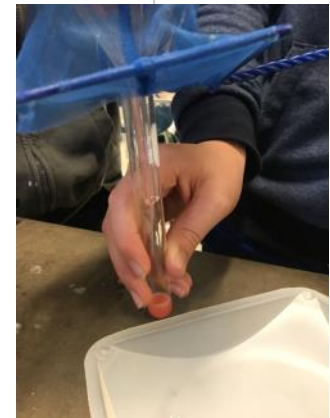


• What purpose does the gauze serve?

The gauze filters out all unnecessary parts of the strawberry.

Part D:
isolating the DNA even more!

1. layer an equal volume of ice cold alcohol on top of the strawberry solution in the test tube using the plastic transport pipette
2. observe what happens at the interface of the alcohol and strawberry solution when you twirl a long wooden splint through the interface. keep the tube at eye level and DO NOT SHAKE it.



• Describe what you observe. What do you think is the DNA?

I observe what looks like several white bubbles floating in the alcohol. This is the DNA.



This is the DNA.

- What purpose does the alcohol serve?

Alcohol helps isolate the DNA.

