

The New Gene Solution?

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Question

- Is hydrogen peroxide or rubbing alcohol more efficient to use when extracting strawberry DNA?



Abstract

- DNA can be extracted from many different types of cells. Extracting DNA may sound very complicated but in some cases it can be quite simple. The first step is to pop open the cell, this process is called lysis, this can be done in many different ways. Once the cells have popped open, a salt solution and a detergent solution that has sodium dodecyl sulfate is added. We use detergent to help pop open the cells and the salt is added to make sure that the proteins in the cell are not separated from the rest of the solution with the DNA.

Hypothesis

If I use hydrogen peroxide, then the cells will be able to dissolve easier which will make the strands of DNA more visible.

Materials needed

- Rubbing alcohol
- Measuring cup
- Water
- Dishwashing liquid
- small bowl
- cheesecloth
- Strainer / funnel
- cup
- Strawberries
- Small glass jar
- plastic sandwich bag
- Bamboo skewer
- Hydrogen peroxide
- salt

Procedure

- Chill the rubbing alcohol in the freezer.
- Mix the salt, water, and detergent in a glass or small bowl. This is the extraction liquid.
- Line up the funnel with the cheesecloth, and put the funnel's tube into the cup.
- Put the strawberries in the plastic bag.
- Smash the strawberry mixture gently for 2 minutes.
- Add 3 tablespoons of the extraction liquid to the strawberries in the bag and reseal the bag.
- Squeeze the strawberry mixture for 1 minute.
- Pour the strawberry mixture from the bag into the funnel. Let it drip into the cup until there is no liquid left in the funnel.
- Throw away the cheesecloth and the strawberry pulp inside. Pour the contents of the glass into the small glass jar so it is 1/4 full.
- Tilt the test tube or jar and slowly pour the cold rubbing alcohol down the side. The alcohol should form a layer on top of the strawberry liquid.
- put the bamboo skewer into the jar where the alcohol and strawberry layers meet. Pull up the skewer. The whitish, stringy stuff is DNA.

Rubbing alcohol and Peroxide



Rubbing alcohol



Hydrogen peroxide

Results

Rubbing alcohol results	Hydrogen peroxide results
5 cm wide strands	2 cm wide strands
3 cm wide strands	2.3 cm wide strands
3 cm wide strands	3 cm wide strands
4.2 cm wide strands	3.5 cm wide stands
3.4 cm wide strands	2 cm wide strands
4 cm wide strands	3.5 cm wide strands
4.3 cm	3 cm
3.5 cm	3.4 cm
3.5 cm	2.5 cm
3 cm	2 cm

Results

Rubbing alcohol results	Hydrogen peroxide results
4 cm	3.2 cm
4.2 cm	2.5
3 cm	3 cm
3 cm	2 cm
3.5 cm	2.3 cm
3.2 cm	3 cm
4 cm	3.5 cm
3 cm	2 cm
3.5 cm	3 cm
4 cm	2.5 cm
4.2 cm	2 cm

Conclusion

To conclude my experiment rubbing alcohol actually made more of the DNA visible, my hypothesis ended up being incorrect, but now I know that when extracting DNA rubbing alcohol is used to pop the cell and separate the DNA from everything else.

Resources

[experiment overview](#)

<http://www.imb.uq.edu.au/strawberry-dna-extraction-experiment>

[About extracting DNA](#)

<https://ghr.nlm.nih.gov> › primer › hgp

[About genetics](#)

[KidsHealth](#) › parents › about-genetics

[About genomes](#)

http://www.biologyjunction.com/extracting_dna.htm