
The Extraction Of Fruit DNA

It was hypothesised that if the fruit was mixed with dishwashing liquid, salt, water and ethanol, then DNA would be extracted. This was supported. The aim, of the experiment was to extract DNA from fruit and look at it under the microscope. This was achieved based on the results of the experiment. Adequate amounts of DNA were extracted from the grapes. The dishwashing liquid was used in the DNA extracting solution as it bursts open the cells of the fruit, releasing the DNA. Salt was used in the DNA extracting solution as it ensures that the proteins in the cells of the fruit are not separated from the rest of the extraction solution.

The ethanol was used as it allows the DNA strands to clump together and become visible to the naked eye. Without the ethanol the molecules are insoluble meaning the DNA does not clump together. The DNA could be seen because of the extraction solution separating and breaking apart the cells walls and parts, allowing the copy of DNA in the nucleus to become visible to the naked eye. The procedure that was taken to extract DNA was by breaking the cell walls by physically squishing the fruit. The chemical (dishwashing liquid) process broke down the cell walls, cell membrane and nuclear membrane. The fruit mixture was cooled to stop the DNases (deoxyribonuclease, which is an enzyme that catalyzes the hydrolytic chasm of phosphodiester connections in the DNA backbone, thus degrading the DNA), released from the cytoplasm from destroying the cell's DNA. The fruit pulp and juice were filtered to separate the large cell parts that weren't needed in the DNA extraction.

The DNA was then precipitated through the ethanol. Why is DNA so important? DNA tells a person who they are. It is a molecule that is like the little recipe for life, it holds all the important information your body needs to function. An important for coding for proteins, inheritance and the genetic instruction guide for like and its processes, it holds each instruction for an organism's/cell's development, growth, reproduction and someday, death. An important line of DNA research is pharmacogenomics, which focuses on the role of genetics in drug response as different people respond differently to the same medical treatments. For example, chemotherapy treatment for cancer involves the chemical mercaptopurine, which kills the tumour cells. Although there are side effects due to the mercaptopurine being toxic. This isn't always a problem for cancer suffers as the patients produce an enzyme called TPMT (thiopurine methyltransferase), which breaks down the mercaptopurine before the blood level gets too high. Although, some patient's bodies don't produce TPMT fast enough and suffer the toxic side-effects to the drug. By doctors studying the specific DNA of their patients, they can determine how extreme they will react to the drug and can control the dosage amount. DNA also identifies the risk factors of genetic disorders, diseases or conditions to families/generations.

Conclusion

It was hypothesised that if the fruit was mixed with dishwashing liquid, salt, water and ethanol, then, DNA would be extracted. This was supported. The aim was achieved based on the results. DNA is one of the finest discoveries in the world of science. Based on the number of inclusions it has in; diagnostics, treatment, genetic engineering and forensics. The extraction of DNA just shows a small part of the actual thing.

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