

The Effects of Salt Types on The Quality of DNA Extraction Using DIY DNA Extraction Method

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Structured Abstract

Background: The present study explores the impact of various salt types on the quality of DNA extraction using a cost-effective and accessible DIY (Do-It-Yourself) DNA extraction method. The primary objective is to determine the most effective salt that yields high-quality DNA.

Methods: In this study, the strawberry fruit was used in the sample preparation. DIY DNA extraction was done to observe the yield of DNA using different salt types which are sodium chloride, sodium acetate and potassium acetate. The purity and concentration of extracted DNA were assessed using a spectrophotometer at an absorbance 260/280 nm. The presence and integrity of DNA bands were examined through agarose gel electrophoresis.

Results: The results revealed that potassium acetate produced more DNA white clump compared to sodium acetate and sodium chloride after extraction process. Additionally, spectrophotometer was used as a quality determination of DNA. Potassium acetate also demonstrated the highest DNA quality, showing no contaminations, as indicated by readings within the 1.8 to 2.0 range at an absorbance 260/280 nm followed by sodium chloride and sodium acetate. Agarose gel electrophoresis showed the DNA bands were smeared and barely can be seen. All samples were degraded as the bands lie between 1500 and 1000 bp.

Conclusion: The types of salt used during DNA extraction significantly impacted the quality and quantity of the extracted DNA. Potassium acetate proved to be the most effective in producing greater DNA yield and high-quality DNA with minimal impurities.

Keywords: DNA Extraction, DIY, salt, spectrophotometer, agarose gel electrophoresis

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