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The Effect of Different Water Bath Temperatures on the Quality of DNA Extracted using Do-It-Yourself (DIY) Method

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Structured Abstract

Background: DNA extraction is a fundamental process in molecular biology and serving as a crucial step in ensuring successful downstream molecular biology processes. DIY method provides an accessible and cost-effective way to understand the basic principle of DNA extraction.

Methods: In this study, DIY DNA extraction method that was proposed by The American Phytopathological Society (APS) was used to investigate the impact of different water bath temperatures on the yield of DNA extracted by observing the precipitation of a clump. The quality of DNA extracted at different water bath temperatures were evaluated by using agarose gel electrophoresis and spectrophotometer.

Results: The results shows that DNA samples at 30°C present more clumps as compared to 60°C and 90°C. Beside that, spectrophotometer was used to determine the yield by observing the DNA concentration values of strawberry extracted. DNA samples at 30°C also shows the highest values of DNA concentration. Meanwhile for the quality of DNA extracted, all the sample fall below 1.8 indicates the presence of contaminants. The results from agarose gel electrophoresis showed that the DNA bands are blurry and smear which indicates all the samples are degraded.

Conclusion: Different water bath temperatures affect the yield and quality of DNA extracted. The best temperature to be used to observe the yield extracted are at 30°C because there are more clumps present.

Keywords: DIY DNA extraction, water bath, quality of DNA, agarose gel electrophoresis, spectrophotometer

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