

Moss Biodiversity Near the Ponds of Central Park Alma Laufer Barhad and Neil Kush & Mr. Michael Paul

Abstract

- Moss is found on all continents and is important to maintain moisture in ecosystems (McHale)
- The objective of this experiment was to determine the biodiversity of moss in Central Park.
- Unfortunately, the sequences of the samples we collected were not analyzable. We believe the failed sequencing may have been caused by DNA degradation that occurred in a warm storage environment.

Introduction

- The objective of this project was to determine the biodiversity of the moss species near the Central Park ponds (Dollery).
- Central Park's ecosystem is both delicate and heavily managed.
- Moss has a strong effect on its environment due to its ability to manage moisture in an environment (McHale).

Materials & Methods

- During the study, samples of moss were collected off of nine different surfaces in Central Park.
- To collect samples, a pair of tweezers were used to remove clumps of moss, which were stored in d in a freezer and refrigerator
- The Chelex Isolation and purification techniques provided by the DNALC were used to isolate our DNA.
- PCR was performed to amplify the rbcL gene in our samples.
- Gel electrophoresis was then utilized to determine the success of our amplification.
- The successfully amplified samples were then sent off to be sequenced using the Sanger method.



Results

While we were attempting to determine the variety of species present near the lakes of Central Park, we were unable to generate any analyzable sequences. We did successfully amplify one of our sequences as pictured in the gel below. We have also included the images of the moss samples that we had collected over the course of this project.

Tables & Figures

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Discussion

- Because of the numerous steps of the method, it is difficult to discern the step that generated the issue.
- We suspect that the storage method produced the issue. Our school ran out of freezer space, so many of our samples were stored in the fridge for almost 3 weeks due to scheduling issues.
- The higher temperature may have caused DNA degradation.
- Next year, storing our samples in a cold environment will be a priority.
- Initially, this project aimed to analyze algae instead of moss, but algae was not readily available when we were searching for samples.

References

Dollery, Rebecca, et al. "The ecological importance of moss ground cover in dry shrubland restoration within an irrigated agricultural landscape matrix." *PubMed*, National Library of Medicine, 23 April 2022, https://pubmed.ncbi.nlm.nih.gov/35475181/. Accessed 19 May 2023.

McHale, Ellen. "7 interesting things about moss | Kew." *Kew Gardens*, 23 May 2020, https://www.kew.org/read-and-watch/moss. Accessed 19 May 2023.

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