

## Abstract

Many people who live in urban areas where most plants thrive are inside parks, and the fourth-largest park in New York City is the Flushing Meadow Park. This experiment was conducted in this park to illustrate the plant diversity and sustainability of this park and seek the origin of the plants that live in the park through DNA barcoding techniques. The DNA will be extracted from the plants by using the Silica DNA Extraction method and using the DNA sequences acquired to uncover the plant species in BLAST and DNA Subway. Due to the Covid-19 pandemic causing the closing of schools, researchers lost access to the essential materials, which leads to the incompleteness of data for DNA extraction. However, based on the qualitative data from the nine different samples, each sample shows unique characteristics, which means they are most likely different species, illustrating how the park has significant plant biodiversity.

## Introduction

Plants are crucial to humanity as they produce the oxygen humans breathe thus, individuals must work to protect plant life. An invasive species is defined as a species that is not local and will negatively affect the environment. The purpose of this experiment is to identify the plants at the park and to determine if it has diversity of plants. In addition to finding the biodiversity of the park. If there is an invasive species that plant will dominate, causing the biodiversity to decrease. The hypothesis of the experiment is, if there is a significant quantity of plant species diversity in Flushing Meadow Park then there should be a greater variety of plants because the greater species diversity there is, ensures natural sustainability for all life forms

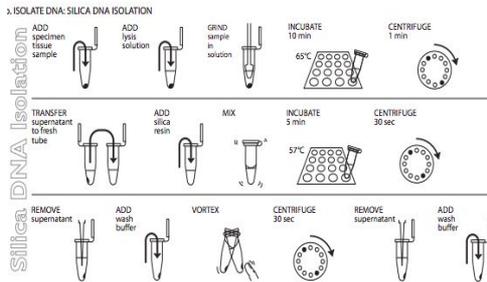
## Materials and Methods

- 9 samples were collected from the Flushing Meadow Park. The Flushing Meadows Park was divided into 9 quadrants as Diagram 1 shows. One sample from each quadrant.
- The DNA Barcoding Protocol was followed to conduct this experiment.
- First, Silica DNA Isolation Method was used for the sample DNA extraction.
- Second, gel electrophoresis will be performed to determine whether the DNA isolation process is success.
- Third, PCR machine will be used for amplifying the Sample DNA for sequencing.
- Fourth, the sample DNA will be sent to GENEWIZ to sequencing the DNA.
- Final, upload the data to DNA Subway and BLAST to identify the plant species.

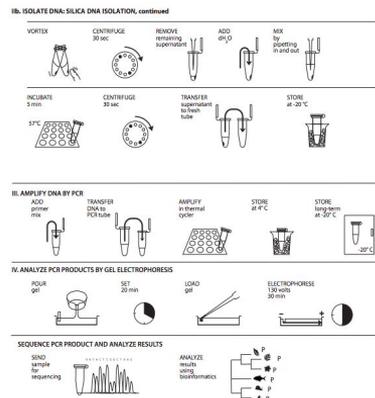


(Diagram 1 : Quadrant locations)

(Diagram 2: DNA Barcoding Protocol A)



(Diagram 3: DNA Barcoding Protocol B)



## Results and Discussion

Using the qualitative data obtained from observing the plants characteristic traits like color, height, location, shape, and more reveals that there is a good diversity of plants in the different environments of the park. Comparing the surface characteristics of the nine samples, all nine samples show different characteristics which each live in different environments throughout the park, which most likely results in the conclusion that they are different species, therefore illustrating a significant plant diversity in Flushing Meadows-Corona Park. But due to the Coronavirus some barcoding groups were not able to complete their experiment. During the time before the shutting down of all schools, qualitative was able to be acquired but no quantitative data was collected. So the accurate names and species are unable to be determined.

## References

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