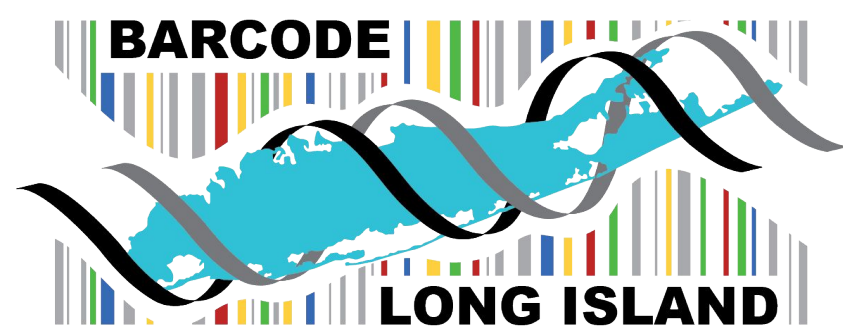




Mystery of Spotted Lanternflies:

DNA Purification to Decode Attraction

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Abstract

Proposal abstract: Our project will focus on the effect of the Spotted Lantern Fly on our local flora. Certain species of trees are being killed by these insects and we want to see how this is affecting our local environment. Not only are we interested in the adult insects but the impact of their egg sacks on the bark of trees where they lay them. We will also look at associated lichen species on trees that the spotted lanternflies visit. There is a spotted lanternfly trap that we will get samples from. These invasive species are creating havoc on our local ecosystem and without natural predators it is difficult to keep their population in check. Local environmental agencies have encouraged people to kill them on sight but this method does not seem to be slowing their spread. We need to find a remedy or our local tree populations will be permanently affected. By identifying lichen species on trees preferred by this invasive species, we may be able to control the population.

Introduction

We were curious to figure out which species of plants will be most susceptible to the effects of this invasive species. Researching the path and track of the lanternfly guided our investigation and helped us to narrow down areas to gather the samples

Materials & Methods

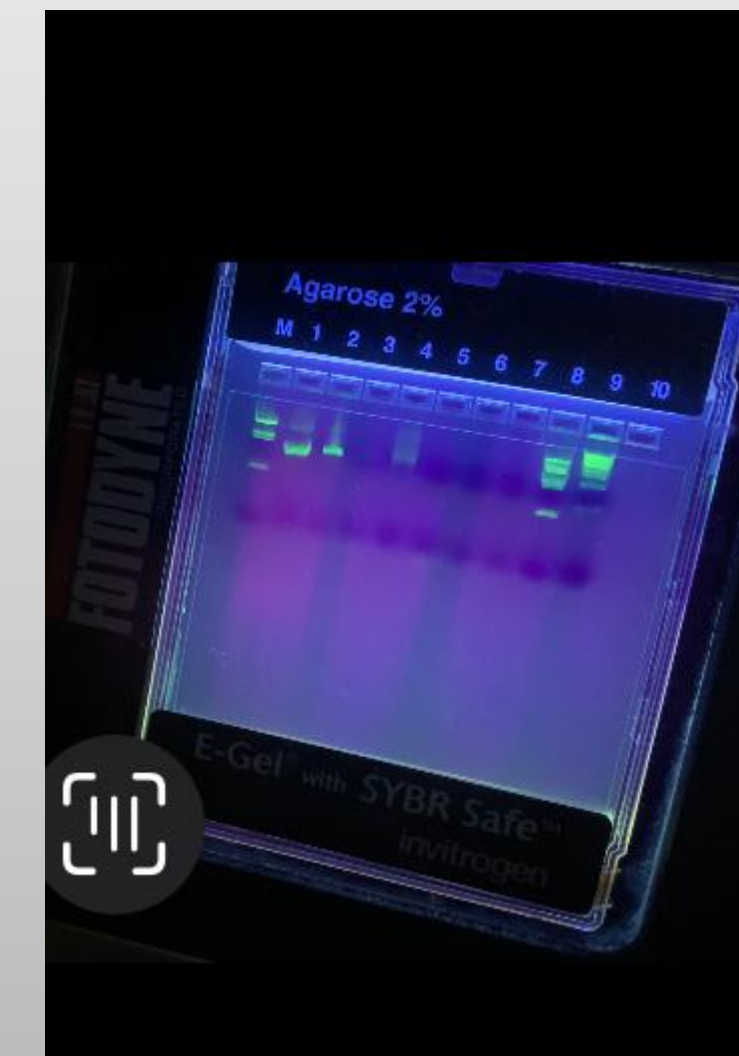
We utilized collection materials and collected samples of plants and lanternflies from the Garden City, NY area. Utilizing the samples we performed a DNA purification extraction using gel electrophoresis. We analyzed samples of plants and lichen as well as the leg from a lanternfly in the hopes to identify the variety of trees and lichen that the insect is most attracted to helping to quell their population growth.

Results

We performed an experiment with the collected materials to help isolate DNA fragments based on size. We got good results from the plant samples collected but not enough DNA from the insect leg to provide meaningful data

- Lane 1: PBR322/BstNI Molecular Weight Marker
2. Plant sample with rBCL primer
3. Plant sample with Carolina rBCL primer
4. Fungi sample with ITS-1 primer

PCR Gel Results



Collection Samples



Discussion

rBCL primer worked either from DNA Learning Center or Carolina Biological on frozen fresh plant samples.

The lichen primer was fuzzier, indicating that maybe multiple fungi species were present.

These plant and fungi species could be indicators of a tree that lanternfly will infect and this could help towns guard the trees and prevent attack by the lanternflies in the future.

References

- <https://www.fws.gov/story/dragonfly-watching-wildlife-refuges>
<https://www.fws.gov/story/stopping-spotted-lanternfly-its-tracks>
<https://liisma.org/slf-squares/>

Acknowledgements

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