



Plant Quarantine

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Cell Biology and Genetics

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Introduction:

In the summer of 2022, I interned for the Plant Germplasm Quarantine Program (PGQP). PGQP is a program that is a part of USDA APHIS and aims to check and clean various crops from different countries for pathogens before bringing them into the United States. I worked on the poaceae team at PGQP, which involved working with grass, rice, bamboo, and sugarcane.



Image 1: Collecting sample from a positive control plant for extraction

Methods:

Some methods I used when conducting my practicum work:

- Extracting RNA from fresh plant tissues
- Conducting RNA Quantification
- Performing PCR on previously extracted RNA samples
- Running PCR in Gel electrophoresis
- Submitting PCR results for sequencing



Figure 1: Illustrates steps involved in determining if a plant has a specific pathogen

Site Information:

Name of Site: National Plant Germplasm Quarantine Center

Address: 9901 Powder Mill Rd, Laurel, MD 20708

Your supervisor: Dr. Bishwo Adhikari

The site mission: Checking crops from other countries for potential pathogens before releasing them into the states.



Image 2: Creating reaction mix for an Endornavirus PCR

Results/Discussion:

During my internship, I worked a lot with eighteen rice plants we had in our greenhouses. I extracted their RNA from each plant and then ran a PCR on the samples to find out if they had Endornavirus. I found that out of the eighteen rice plants, six of them had tested positive for Endornavirus. The twelve that were negative were shipped out, but the six positive stayed for further testing.

Future Work:

I always had an idea that I wanted to work in a lab and go into research and working in a lab, but working at PGQP helped me to confirm this. I hope to continue working for Dr. Adhikari at PGQP as I still have a lot left to learn.

Acknowledgments:

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