Research Methods for Plant STD: Anther Smut

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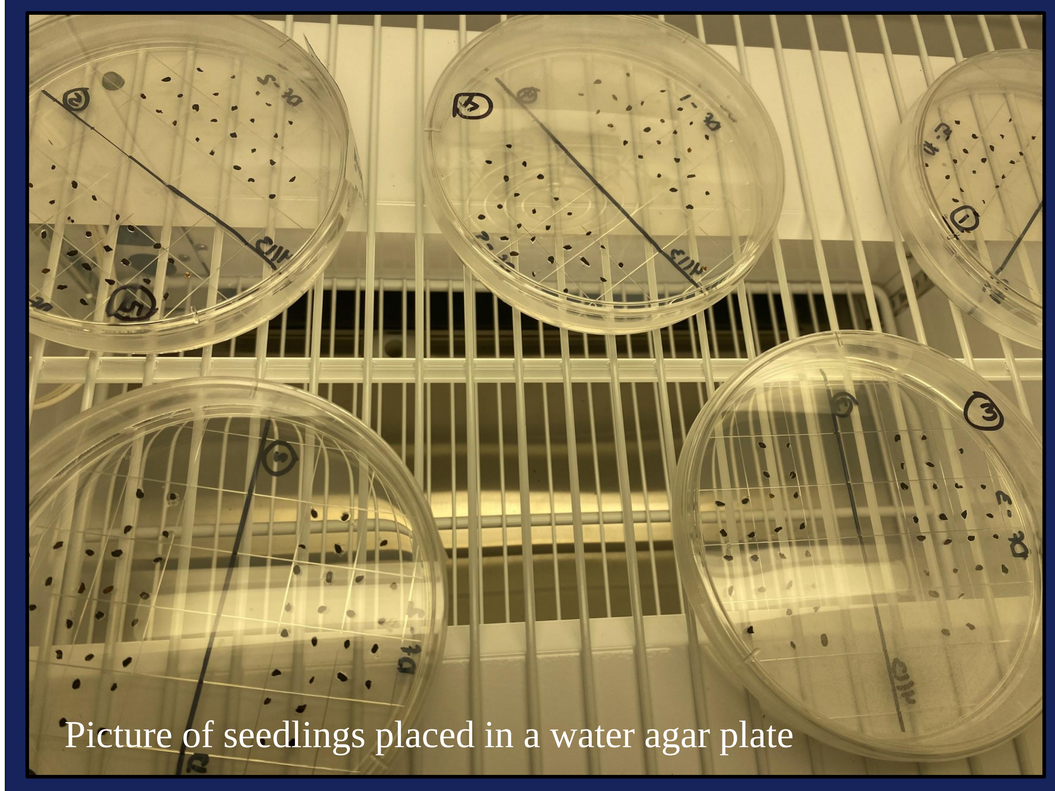
Introduction

Anther-smut disease is caused by the plant-parasitic genus *Microbotryum*. The smug fungus bears teliospores as dispersal agents. Seedlings and flowers of *Dianthus pavonius* were inoculated with teliospores, and this research observes its infection and possible conjugation under a microscope.



Picture of seedlings placed in a water agar plate

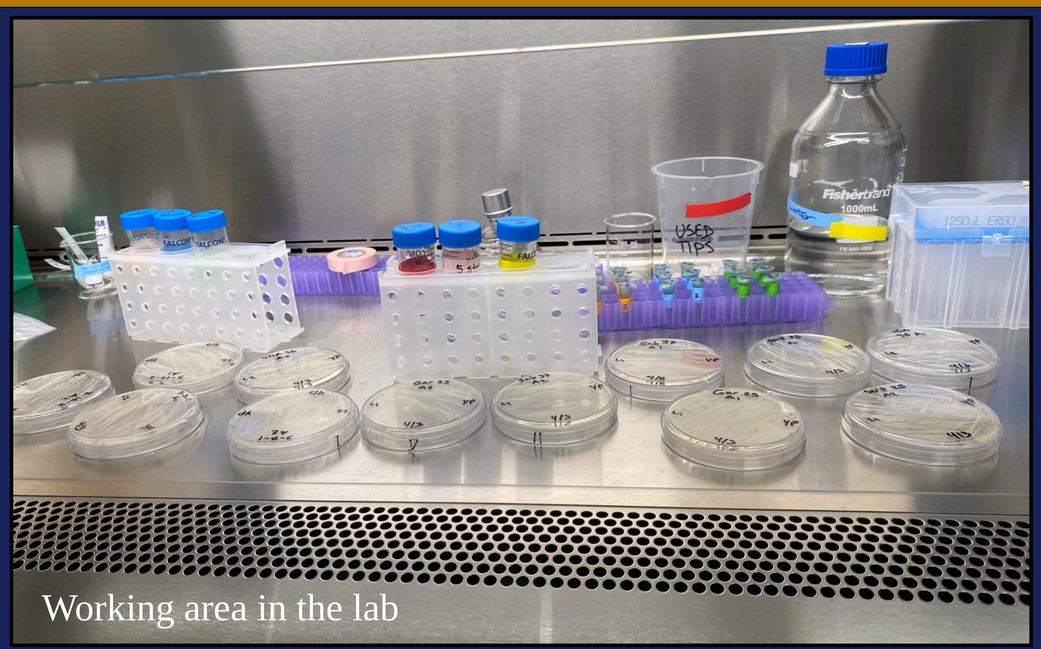
Materials:

Water Agar for mating + seedlings; Potato Dextrose Agar plates, seeds from Italy, potting materials (soil, trays), hemocytometer, micropipettes, microscope, DNA extraction kit, PCR kit, tweezers

Methods :

Spent the first months learning techniques that can help me create experiments that look at the system. I worked in the greenhouse, the field, and learned the things necessary to grow the pathogen, the host and what experiments we can do with them:

- Autoclave stuff, Made Agar
- Planted and sterilized seedlings (using ethanol and heat)
- Grew smut from freezer cultures
- Counted sporidia using a hemocytometer and microscope and made specific concentrations of smut
- Inoculated adults and seedlings with smut
- Exacted DNA from smut and used PCR to analyze mating types



Working area in the lab

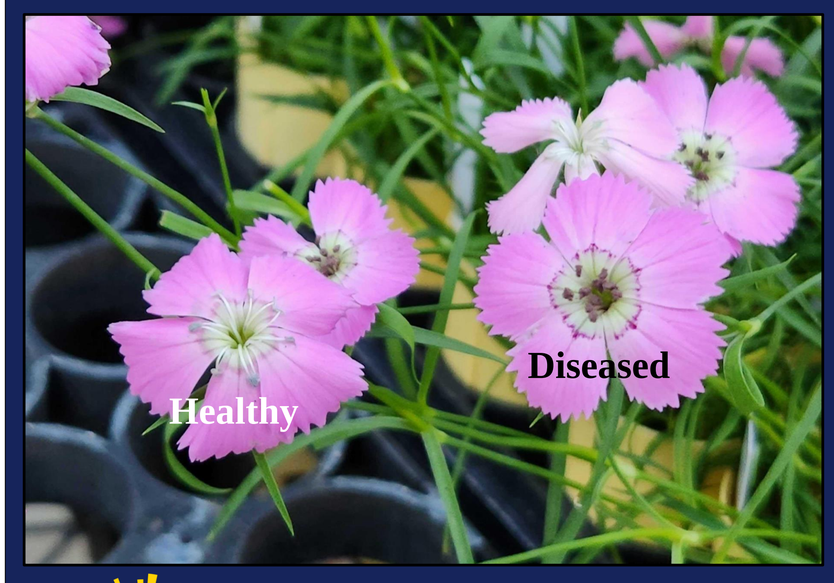
Site Information:

Bruns Lab

On Campus Biosciences Research Building

Supervisor: Dr. Emily Bruns, Yanelyn T Perez

Research is focused on understanding the effects of infectious disease in natural populations and how they intersect with the evolution of pathogenic traits!



Discussion:

Anther smut is a diverging species to which we don't know how that looks like. We are doing mating experiments to see if there are any barriers in reproduction that helps maintain divergence. *Silene Latifolia* is a self mating system, and we don't know if that holds true with the *Dianthus pavonius*.

Results:

Based on the lab techniques learned, I want to make a research project on mating.

Acknowledgments:

I would like to acknowledge Yanelyn, my supervisor, the Principle Investigator, Emily Bruns and Dr. Merck and Dr. Holtz for our amazing Scholars program.