**Evaluation of Microbiome Rhizosphere Plating Experiment**

**By: Wynand “Whit” Hanssen**

**Section One: Answering the questions given to us in the final Rhizosphere Planting Experiment instructions.**

Question 1: Which media do you think will support the growth of more microorganisms: defined (minus nitrogen) or rich? Why

Answer: I believe that the rich petri dish will support more microorganisms due to the higher amount of nutrients available and the more hospitable environment allowing it to support a larger population and a wider variety. I also came to this conclusion because in the images of the same experiment done by the instructors showed much more bacteria colonies present in the rich dishes.

Question 2: Do you expect to find more microorganisms in bulk soil or associated with roots? Why?

Answer: I believe that you will find more microorganisms in the root samples because as many microorganisms that are present in the soil, they crowd around the roots as an evolutionary function to help both the plant and the microorganisms. So by deductive reasoning, background knowledge, and information the instructors gave us, I would assume that there would be much more microorganisms present in the root samples.

Question 3: Do you expect to see a more diverse set of microorganisms (based on their phenotype) to grow on defined or rich media? Why?

Answer: I expect to see more microorganisms present in the rich media because there is a larger variety of food sources and just generally more food for the microorganisms, thus creating a more hospitable environment allowing a larger variety of microbes to be present in the rich media.

**Section Two: Essay**

I am writing this paper to evaluate my learning and experiences throughout the Microbiome Rhizosphere Plating Experiment and the lead up to it. I believe that this experiment has done many things for me in assisting my learning of how to properly format experiments as well as help me in deciding my future career(s) in science. Some of my current favorites are the sciences of biolistics and other genetic modification technologies.

I believe that the most appropriate place to begin is obviously the beginning of the experiment. At the beginning I felt very honoured, humbled, and worried when I learned I was to be working with multiple researchers with Ph.D.’s. When I first received the box with all of the equipment and instructions for the experiment, I honestly had no clue of what to expect of this except for great challenges. I unfortunately didn’t have very much experience with this sort of thing at the time despite how avidly I involved myself in the sciences. I quickly set up the experiment to learn very soon that there wasn’t too much to do with it once I had begun. I simply recorded the measurements of the plants every Sunday and I didn’t have nearly as much difficulty as I expected. True, there was still much to be done with it and I was actively engaged with the experiment and the other work around it but it was much less stressful and overall more enjoyable.

What I found in the plating experiment actually lined up with my predictions for answering the three questions found in section 1. When viewing my petri dishes I saw much, much more microorganism colonies present in the rich medium, maize samples than any other samples. Unfortunately I didn’t have any surviving sorghum plants so I was unable to compare my other two sample series with a third. It seems that I have an unexpectedly large amount of colonies even in the much more diluted samples, and this goes for both the maize samples and the bulk soil samples. The rich medium supported much more colonies and I saw a larger variety of microorganisms in them and the best results came from the root samples so it does successfully confirm my predictions.

At the end of the experiment I felt like I actually achieved that satisfaction of completing an actual complicated, well thought out science experiment with scientific grounding that I actually understood. That and it had the perfect level of difficulty coming with it. I needed to mentally think and engage with it and read the instructions thoroughly and have to remember important information unlike most other experiences with “science” where I pour one pre measured volume of chemicals into another and saw some colourful reaction for my own viewing pleasure. It was a difficult experiment with a rewarding end and helped me get a much better understanding for the scientific community and what they do in it and how I would like to enter it myself with my own goals and ideas. When Dr. Karin van Dijk came to pick up the results for the experiment she told me about a biolistics expert she personally knows so I have access to another great resource and learning opportunity for the future. I hope I can come across more opportunities like this expertly crafted and indulging occurrence that will allow me to improve as a person of science. Thank you. Whit