The Effects of a Simulated Mars Environment Carbon Dioxide Chamber on the Primary Productivity of Select Cyanobacteria

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The purpose of this experiment is to determine whether the selected cyanobacteria: Anabaena, Eucapsis, Fischerella, Tolypothrix, Merismopedia, Nostoc, and Spirulina, would prosper in a Mars Simulated Carbon Dioxide Chamber. The Mars Simulated Carbon Dioxide Chamber was built to flow carbon dioxide over the Mars Simulated Environments. Within the chamber, Mars Simulated Soil from The Marian Garden, grade MMS-2, was placed in the bottom of the cups. On top of the soil, 2mL of the respective cyanobacteria was micropipetted in, and the remainder of the container was filled with spring water. It was suggested that the dissolved oxygen levels would increase after 48 hours. To test this hypothesis a Mars Simulated Carbon Dioxide Chamber was created by attaching spouts and tubing to a hole in the side, and top of the container. One hose will attach to the carbon dioxide tank, and the other will be in a container of water to ensure no air goes back into the container. Bromothymol blue indicator was put in the water to make it easy to determine if carbon dioxide was escaping the container. In the third hole, place the carbon dioxide probe and attach it to the lab quest. In addition, a set of the Mars Simulated Environments were also placed in light and dark environments as controls. The initial dissolved oxygen levels were tested and recorded, and 48 hours later the dissolved oxygen levels of the light and dark environments were recorded and compared. Experimentation still in process.

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