Effect of Pleosporales Fungi on Commercial Crop Growth and Germination

Peuster, Jayleigh (School: Southeastern Junior/Senior High School)

Many plants depend on complex communities of microorganisms to support growth. Symbiosis, the interaction between two species, has been occurring for over 400 million years. As close partners of plants, many types of fungi can bond with roots and seeds to help plant growth and increase stress tolerance. Plant associated fungal ecosystems mostly contain arbuscular mycorrhizal fungi and ectomycorrhizal fungi. The purpose of this project is to test the effect of Pleosporales cultures on corn, soybeans, and blue gramma germination and growth. Germination rates will be measured as well as stem and root lengths, root counts and leaf counts. Sterilized corn, blue gramma, and soybeans seeds were placed in jars, control and experimental. The experimental jars contained isolates of Pleosporales fungi DS214. They were placed in a dark chamber until germination began and then transferred to a growth chamber for 18 days. Plants were harvested, and root lengths measured, shoots measured, leaves and roots counted. After conducting six trials and analyzing the data, it was concluded that DS214 did not have a significant increase on the germination of the soybeans or of the corn; however, it did increase germination and overall plant growth in the blue gramma. It was also concluded that DS214 did not have a significant increase on the number of roots, number of leaves, length of stems, and length of roots for corn, but it did have a positive effect on the lengths of the stems of the soybeans.

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