Applied Mycology: Do Fungal Endophyte Communities Differ Between Western Spruce Budworm Infested Douglas Fir and Uninfested Douglas Fir?

Shelton, Hannah (School: Centauri High School)

Endophytes are a diverse group of fungi that can have a profound impact on plants in either a beneficial or detrimental way. They can have a symbiotic relationship with the host plants, or the endophytes can be opportunistic pathogens. The intention of this study is to discern if fungal endophyte communities differ between Douglas fir trees that have apparent western spruce budworm infestations or no apparent infestations. Western spruce budworms are one of the leading causes of the destruction of the forests within Colorado. Trees are an integral part of a healthy watershed and they provide a wealth of habitat for many organisms. Healthy trees have healthy root systems that hold the soil in place. When precipitation comes the ground is less likely to erode and leak sediments into nearby waterways. Rather precipitation has an opportunity to soak down into the soil naturally recharging aquifers deep within the Earth. Our forests in the west are under an immense amount of stress from the ongoing drought and pests such as the western spruce budworm. Many of our forests are succumbing to this and trees are dying, negatively impacting our watersheds and organisms that rely on our forests for habitat. If I could find an endophyte that could help slow the spread of western spruce budworms in drought stressed Douglas fir forests this would be a major component in improving the forest ecosystem.