Can Hydroponics Save the Native Hawaiian 'Ohi'a lehua?

Bhattacharya, Zahra (School: Henry Perrine Baldwin High School)

In this experiment, I wanted to test if hydroponics would be able to speed up the normal growth rate of the 'ohi'a lehua comparing it to 'ohi'a plants grown in soil (control). Recently, there have been out breaks of a fungal disease called Rapid 'Ohi'a Death (ROD) causing many 'ohi'a trees in the island of Hawai'i and Kauai to die. Since the 'ohi'a tree grows relatively slowly, I wanted to test and see if hydroponics would be able to speed up the growth rate of young 'ohi'a plants providing a way to replenish the missing trees at the same rate they are dying. Hydroponics has been shown to produce larger crops in size and quantity. In this project I grew 16 small 'ohi'a plants in soil and 16 small 'ohi'a plants in hydroponics for 8 weeks. Every Sunday, Wednesday, and Friday, I measured their height and counted their number of branches. Every week, I replaced the hydroponic nutrients. In the mornings, I watered the soil plants. The results completely supported my hypothesis. The 'ohi'a in hydroponics grew at twice the speed in height and branches compared to the plants grown in soil. The 'ohi'a plants grown in the hydroponic systems appeared to have stronger stems and dark, green leaves. After a few weeks, the 'ohi'a plants in soil appeared to be thin and flimsy. In conclusion, hydroponics does have an effect on the growth rate of young 'ohi'a plants providing a more stable and supportive growing environment.

Awards Won: