

Trevor Rinaldo

Junior Division Plant Sciences

Hydroponics: The Effect Of Different Minerals On Tagetes minima When Grown Hydroponically

The purpose of this project was to determine which minerals, magnesium, phosphorus, potassium, nitrogen, and a hydroponic fertilizer, help the growth, rootmass, photosynthesis rate, and moisture content of the miniature marigold flowers when grown hydroponically. This benefits mankind by finding out which minerals may be helpful in growing healthy plants. The hydroponic technique may help reduce pollution, such as contaminated water run-off from using fertilizers in soil. To set up testing, the researcher had six groups of seven flowers. The seeds were placed into Rockwell cubes and allowed germinate. Mineral solutions were made by dissolving 1 gram of mineral into 20 ml of water to make a 5% solution. The solutions were added to the proper test tubes. Once germinated the plants were placed into the mineral solutions. The plants grew in the tubes for 2 weeks. The photosynthesis rate was measured with probes and computer software. Biomass was determined by mass as well as rootmass. Moisture content of each group was also determined. The data shows that overall magnesium was the best at increasing biomass, rootmass, and moisture content. It had the highest biomass of .13 grams and highest rootmass with .05 grams. The moisture content was second highest with 53.8%. The control was at the lowest in every category with .07 grams of biomass, .01 grams of rootmass, and moisture content of 7%. Adding the minerals did help with the overall health of the plant because the control was the worst in all categories.