

Effects of Different Nutrients on Plant Growth

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5-A

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INTRODUCTION

Nutrients are essential substances that are obtained from food. The body needs these to survive, grow, repair tissue, and function properly. There are two main categories macronutrients and micronutrients.

Macronutrients are vital for plant growth. There are two major categories of macronutrients. Major macronutrients which include N, P, and K. There are secondary macronutrients which include Ca, Mg, and S. They serve an important role in plant growth and development. They help the plant with metabolism, defending against diseases, stressors, and enhancing plant growth and quality. To sum it all up, macronutrients are extremely important for plant growth.

Micronutrients are minerals that are needed in small amounts. They include Ca, Mg, and S. They are needed in small amounts, but are still essential in growth and development.

This science fair project is going to investigate the effects of different nutrients on plant growth. This is important, because it will help us grow more indoor plants, and it would make growing them easier.

HYPOTHESIS

calcium will be the most effective for plant growth. As calcium helps in human bone development, it could help plants as well.

MATERIALS

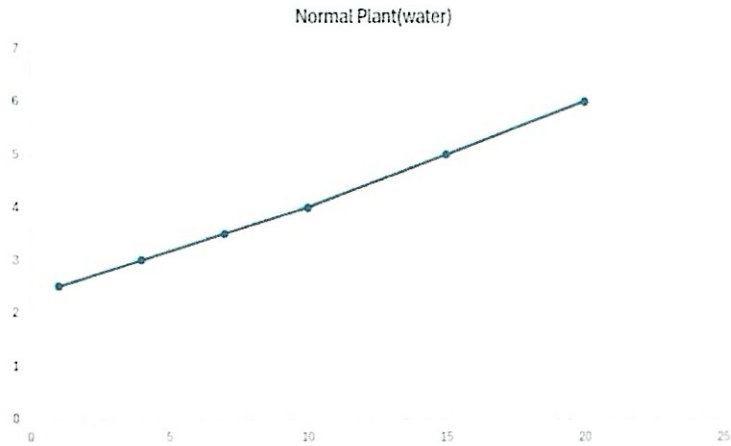
To conduct this experiment you will have many materialities. You will need five tropical, indoor plants. You would need different nutrients such as Sodium-salt, Potassium-banana peels, Nitrogen- fertilizer, and Calcium- milk. You would need water, five pots and soil. You are going to have a camera, a watering can, paper and pen or pencil and a measuring scale. These are all the equipment you will need to perform this experiment.

METHODS

You must have five of the same sized and kind of indoor plants. Give four of them different nutrients, keep one without any nutrient except water. You need a growth chart and a camera to take photos. You should keep the temperature above 22°C. Water the plant as required. You should feed them everyday for accurate results. Provide as much sunlight as possible. Take photos daily. In the final stage, check the data to find the results.

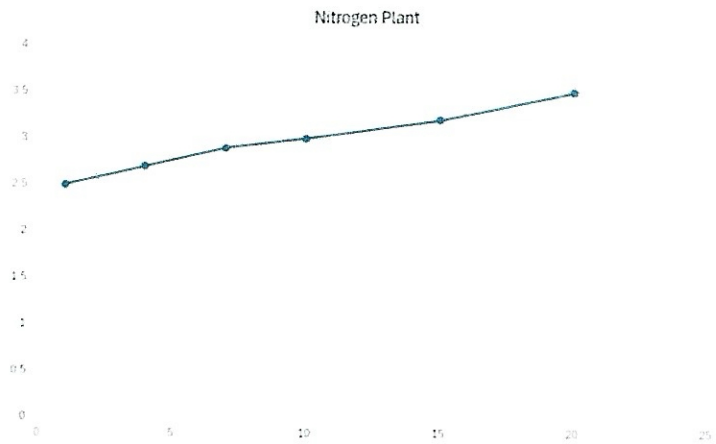
RESULTS

Normal Plant



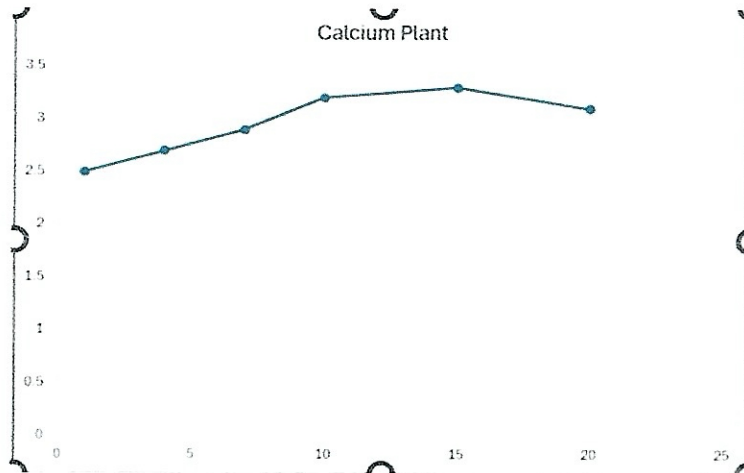
Days	Observations	Measurements	Photo
Day 1	Plant green and healthy	2.5 inches	
Day 4	Plant green and moist	3 inches	
Day 7	Still green and moist	3.5 inches	
Day 10	Still green and moist	4 inches	
Day 15	Still green and moist	5 inches	
Day 20	Healthy, green and moist	6 inches	

Nitrogen Plant



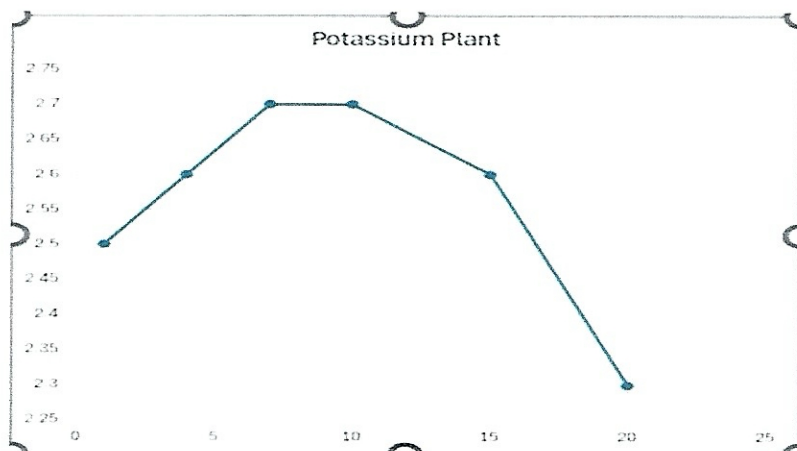
Days	Observations	Measurements	Photos
Day 1	Plant green and healthy	2.5 inches	
Day 4	Plant green and moist	2.7 inches	
Day 7	Some leaves started turning purplish	2.9 inches	
Day 10	Half of plant turned purple	3.0 inches	
Day 15	Almost whole plant turned purple	3.3 inches	
Day 20	Plant look purplish but healthy	3.5 inches	

Calcium Plant



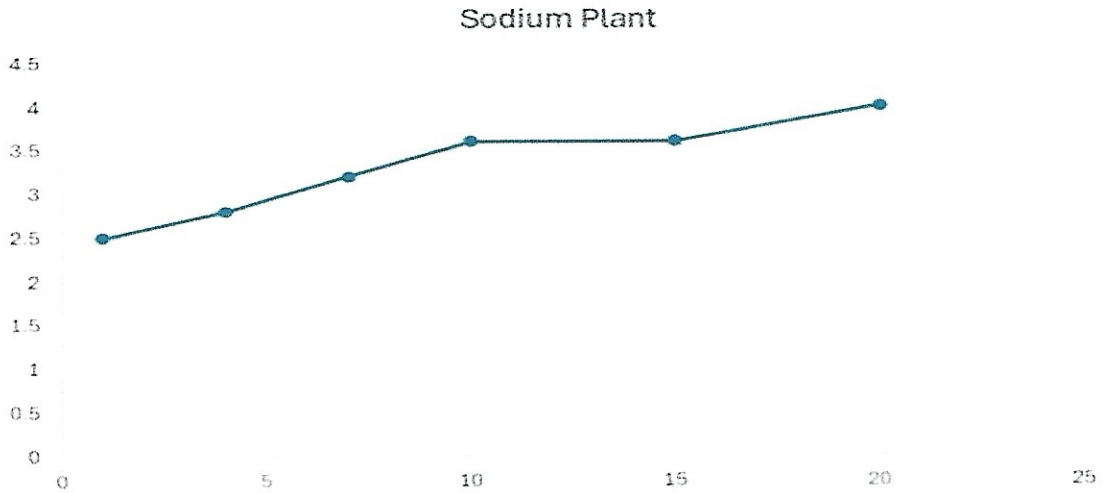
Days	Observations	Measurements	Photo
Day 1	Plant green and healthy	2.5 inches	
Day 4	Plant green and moist	2.7 inches	
Day 7	Some leaves started turning purplish	2.8 inches	
Day 10	¼ of plant purple with pink tips	3.2 inches	
Day 15	Almost whole plant turned purplish green with pink tips	3.3 inches	
Day 20	The roots of the plant started to dry.	3.1 inches	


Potassium Plant



Days	Observations	Measurements	Photo
Day 1	Plant green and healthy	2.5 inches	
Day 4	Plant green and moist	2.6 inches	
Day 7	Some leaves started turning yellowish	2.7 inches	
Day 10	½ of plant turned pale and leaves straight	2.7 inches	
Day 15	Almost whole plant turned pale with dry root	2.6 inches	
Day 20	Bottom of plant dried	2.3 inches	

Sodium Plant



Days	Observations	Measurements	
Day 1	Plant green and healthy	2.5 inches	
Day 4	Plant green and moist	2.8 inches	
Day 7	Still green and healthy	3.2 inches	
Day 10	Half of plant leaves getting purple tips	3.5 inches	
Day 15	Very bottom leaves started died	3.4 inches	
Day 20	Surprisingly got new leaves	4 inches	

Error Analysis and Relationship

The nutrients given to the plants were not exactly measured. This might have affected the results of the experiment. It is related to my science studies. We studied about the plants xylem and phloem, and how they work.