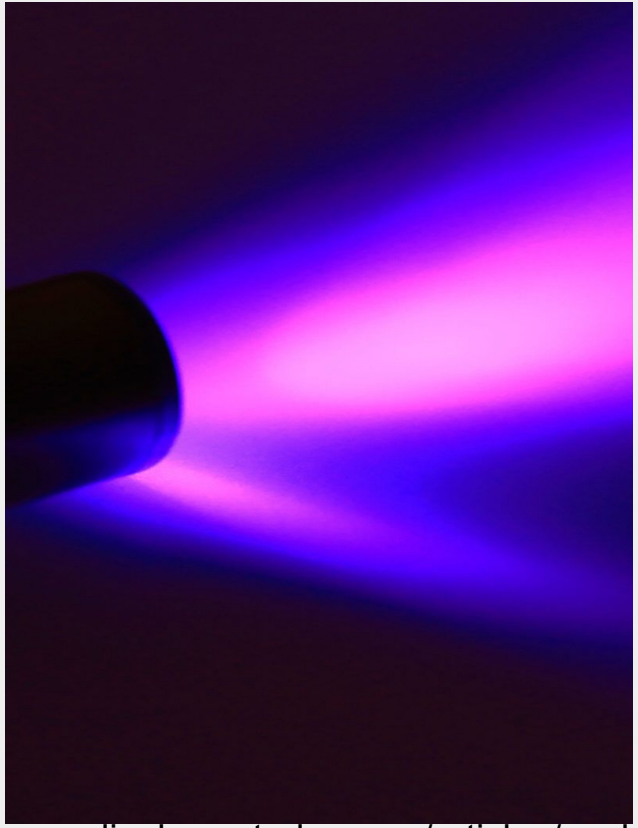
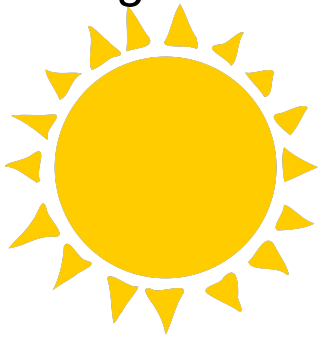
Would a Plant grow better in UV light or Sunlight?



https://www.medicalnewstoday.com/articles/could-a-novel-uv-light-device-inactivate-sars-cov-2-on-surfaces

The Rationale and Purpose of this Project

The purpose of this science plan is to find out if the alternative to sunlight, UV light, helps the growth of plants more efficiently. The reason for this is because there are places that have no sunlight for crops and plants, such as Antarctica and places in Norway. There are even possibilities of bringing life on Mars, so there needs to be a replenishable food source and UV light is one alternative for the growth of those plants.



Research Question and Hypothesis

My Question would be, Do Ultraviolet light rays have a more positive effect on plants or regular sunlight? And so this question will determine if Ultraviolet light rays are more effectictinet in the growth to plants than Sunlight.

My Hypothesis is that the Sunlight will be more effective in the growth of plants than those under constant Ultraviolet light rays.

Method

- Get three of the same type of Thyme
- Get an Ultraviolet lamp or light stand
- Plant each three Thymes in a pot of soil with the same soil from my backyard.
- Give each of them 118.294 ml of water in the evening (6:00) every Monday, Wednesday, and Friday.
- Put one pot in the sun
- Put one pot in the UV light
- Put one pot in the shade
- Record the data from the three plants every day
- Record by using Quantitative and Qualitative
- Compare the two plants with the constant
- See if my Hypothesis is correct, by the 25th of January.

Data

- Each plant received 118.294 ml of water on Monday, Wednesday, and Friday
- Plant #1 : Plant in UV light
- Plant #2 : Plant in doors
- Plant #3 : Plant in Sunlight

Data

Week 1

Plant # 1	No dead leaves, 4 inches tall, 7 ½ inches tall	Healthy green color and white stems
Plant # 2	No dead leaves, 4 ½ inches tall, 6 inches wide	Healthy green color and white stems
Plant # 3	No dead leaves, 4 ¾ inches tall, 6 ½ inches wide	Healthy green color and white stems

Data

Week 2

Plant # 1	8 dead leaves, 3 ½ inches tall, 6 ¾ inches wide	Has a very light green color to leaves and white thin stems
Plant # 2	6 dead leaves, 4 inches tall, 4 ½ inches wide.	Its stems are more durable and greener
Plant # 3	4 dead leaves, 5 inches tall, 6 inches wide	dark green color to its leaves.Its stems are purple and white

Data

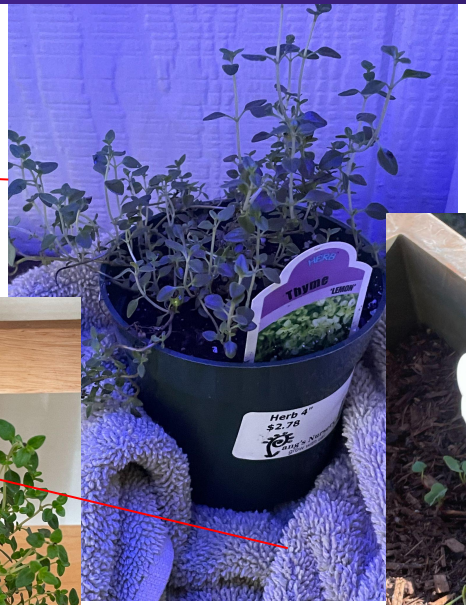
Week 3

Plant # 1	2 ½ inches tall, 4 ½ inches wide	All leaves are dying and turning brown
Plant # 2	7 dead leaves, 5 ½ inches tall, 6 ½ inches wide	Still has a dark and healthy green color, but no purple stems
Plant # 3	12 dead leaves, 3 ½ inches tall, 5 ½ inches wide	Light green color to leaves and white stems

Data

Week 1

- Plant #1
- Plant #2
- Plant #3



Pictures taken by student

Conclusion

Most plants are very sensitive under constant UV-B, due to their sessile nature. Under high UV-B light, it damages the plant cell membrane.

Bibliography

F;, H. (n.d.). *Effects of ultraviolet radiation on plant cells*. Micron (Oxford, England : 1993). Retrieved December 10, 2021, from https://pubmed.ncbi.nlm.nih.gov/11567887/.

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