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What Colors of Light Make a Plant Grow?

The objective of this experiment was to determine what different colors of light make a plant grow best. The hypothesis was that plants grow better in certain colors of light and photosynthesizing plants cannot use green light to make food. Two experiments were conducted. The first experiment was conducted using 21 Hedera helix (English Ivy) plants. These plants were placed in a homemade terrarium. Three of each plant were placed in an identical pot and covered with different color cellophane: red, orange, yellow, green, blue, purple, and clear. Three plants per color were used because they supported three experiment repetitions without introducing other variables (water, temperature, etc). The plants were measured weekly throughout the experiment. The second experiment was conducted using the same procedures with Lactuca sativa (Parris Island Cos Romaine Lettuce) started from seeds. The initial results did not support the hypothesis. The plants with green filters grew well and those with red grew poorly. Research shows the hypothesis was correct; chlorophyll cannot process green light. For this reason, the Lactuca sativa experiment was conducted. The results of this experiment were more in line with the hypothesis. The plants with green filters died and plants for all other colors survived. These results indicate that stored carbohydrates in Hedera helix can sustain it for quite some time in the absence of usable light. This study also supports the hypothesis that green light cannot sustain a plant. Plants started from seed with green light filters sprouted and quickly died.