Energy Amplified Fast Plants

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Abstract

In this experiment, the effects of Vitamin B-12 were tested on the *Brassica rapa* plant. Seeds were planted in planting pods filled with soil and then topped off with 100mg of crushed up Vitamin B-12 before getting watered down and set for 3 weeks of experimentation and observation. The plants hardly grew, but the ones that did presented data that showed promise for re-testing with modified methods of approach, as the experimental grouped plant appeared to be healthier than the control grouped plant.

Introduction

This experiment was designed to test the effects of powdered Vitamin B-12 on the *Brassica rapa* plant. The hypothesis was that the experimental group given the vitamin B-12 will grow larger at a faster rate than the control group growing under normal conditions. This was worth testing because it is known that vitamin B-12 is used by people as an energy supplement, so the curiosity of its effects on plants arose. If vitamin B-12 can help the growth of a plant, perhaps it should be mixed into fertilizers used on farms for faster and stronger crop growth.

Methods and Materials

The materials needed for this experiment include small planting pods, soil, water wicks, anti-algal pads, felt fabric, a container of water and a lid, *Brassica rapa* seeds, and 100mg tablets of Vitamin B-12. The goal here was to attempt to grow 24 plants, 12 experimental plants and 12 control plants. The control plants were to grown under normal circumstances (normal water, normal soil, no Vitamin B-12, and normal sunlight). The experimental plants were to be grown under the same conditions as the control plants, except the experimental plants would get treated with Vitamin B-12.

1. We placed water wicks in each planting pod so the ends stuck out of the bottom and could absorb water from the felt fabric.
2. We the filled each pod halfway with soil and moistened them.
3. One or two seeds were placed in each of the 24 pods.
4. We filled the pods up to ¾ of the way with more soil and moistened them.
5. Then, we put 100mg of powdered vitamin B-12 (100mg is equal to one tablet, pulverized with mortar & pestle) on top of each soil pile in each experimental pod and moistened them again so the vitamin could sink into the soil.
6. We filled the container with water and put a felt fabric strip in just enough to start soaking up water, and covered the container with a lid and folded the fabric over the top of the lid and moistened the fabric.

7. We then placed an anti-algal pad in the container of water.
8. We placed the planting pods on top of the wet fabric and placed under an appropriate lighting apparatus for 2-3 weeks of experimentation and observation.
9. During the experimentation, we watered the plants every 3 days and took note of any changes.

Results

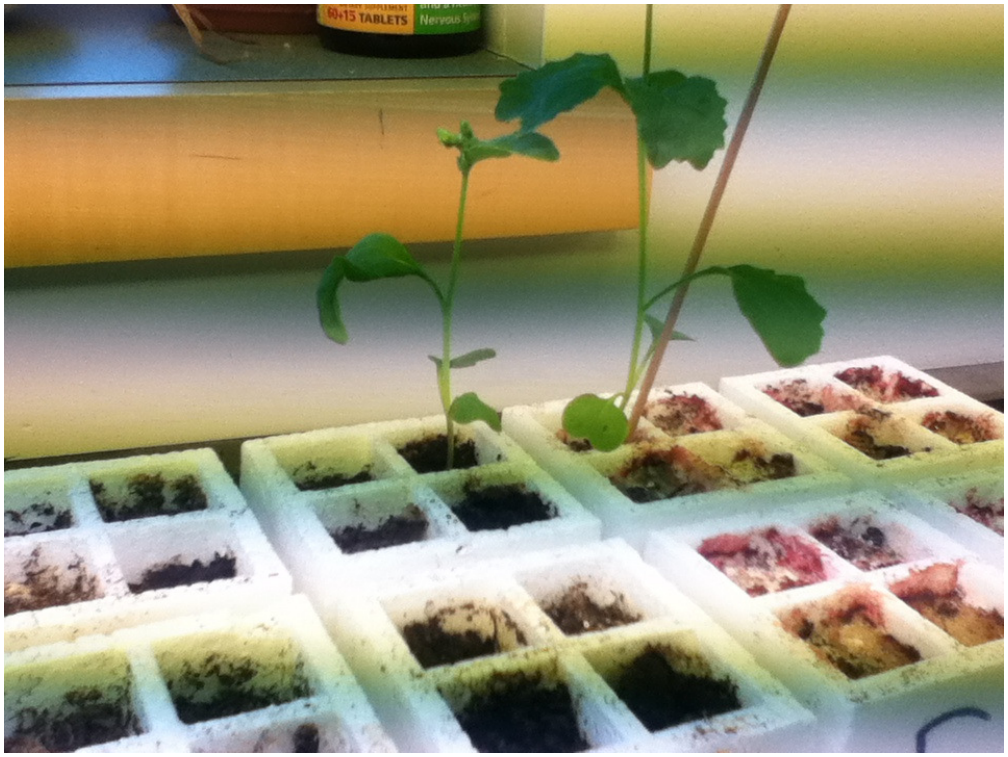

Figure 1-Final Product of Experiment

In **Figure 1**, the *Brassica rapa* plants are shown in the final day of observation. The experimental group is on the right and the control is on the left. Out of 24 plants, only 2 actually grew. Luckily, one was in the control group and the other was experimental, so although the entire experiment appeared to have an issue, some valuable data was still present for collection. In the 3 weeks of experimentation, there are noticeable differences between control and

experimental. The control plant was shorter than the experimental at about 3.2cm, and appeared to be a bit wilted. The experimental plant was taller at 5.1cm and had a healthier appearance. They both had the same coloration and both had 5 leaflets. Another noticeable feature of the experimental group is that the vitamin B-12 seemed to have caked up and molded over.

Discussion

Based on the results explained above, the hypothesis presented was not necessarily proven or disproved, as there was an unseen complication that prevented 91.67% of the plants to grow. The best explanation for the experimental plants not growing is the fact that the Vitamin B-12 caked up, preventing water and light from reaching the seeds/roots, or even simply blocking the plants' path through the soil surface. It's worth noting that the vitamin B-12 molded over, which could also account for the plants not growing. As for the control group, it remains unknown as to why they didn't grow. The best explanation is that they didn't get enough attention as far as watering goes compared to the experimental group.

Based on the plants that did grow, though, it can be assumed that Vitamin B-12 does, in fact, benefit plant growth. The experimental plant that grew was healthier and larger than the control plant. But, because of the lack of substantial data, it must be deemed that it is inconclusive. It is more likely that the experimental plant coincidentally grew healthier than the control group.

Because of the outcome of this experiment, the hypothesis would have to be retested. In order to test this hypothesis more effectively, perhaps the vitamin B-12 could instead be mixed into the soil and then used to pot the seeds, rather than potting the seeds and placing the vitamins on top.

Conclusion

From all of the collected data and observations, the experiment can be considered a failure, with the hypothesis being neither proved nor disproved. There were a lot of factors working against the success of the experiment including the caking up of the vitamins, and the possibility of neglect (as some group members were very inconsistent in their participation). Although the experiment had promise, and the extrapolations from the apparent plants pointed towards a proven hypothesis, not enough data was able to be collected to do so.

Sources Referred To

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