

How Different pH Affects Plant Growth

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Introduction/Rationale

The purpose of this project is to find out if different pH levels (or acidity) affects plant growth. I'm interested in this because my parents are gardeners and it is important in our society because farmers and gardeners need to know what crops that they can grow in that area if their rain is more or less acidic.

Research Problem

How do different pH solutions affect the growth of Wisconsin fast plants?

Hypothesis

I think that the plants with the pH of 2 and 4 will die because of the acidic properties inside it, while the pH of 6 and rain will thrive because it is similar to what is used to water them normally (or closer to a neutral pH level).

Materials and Methods

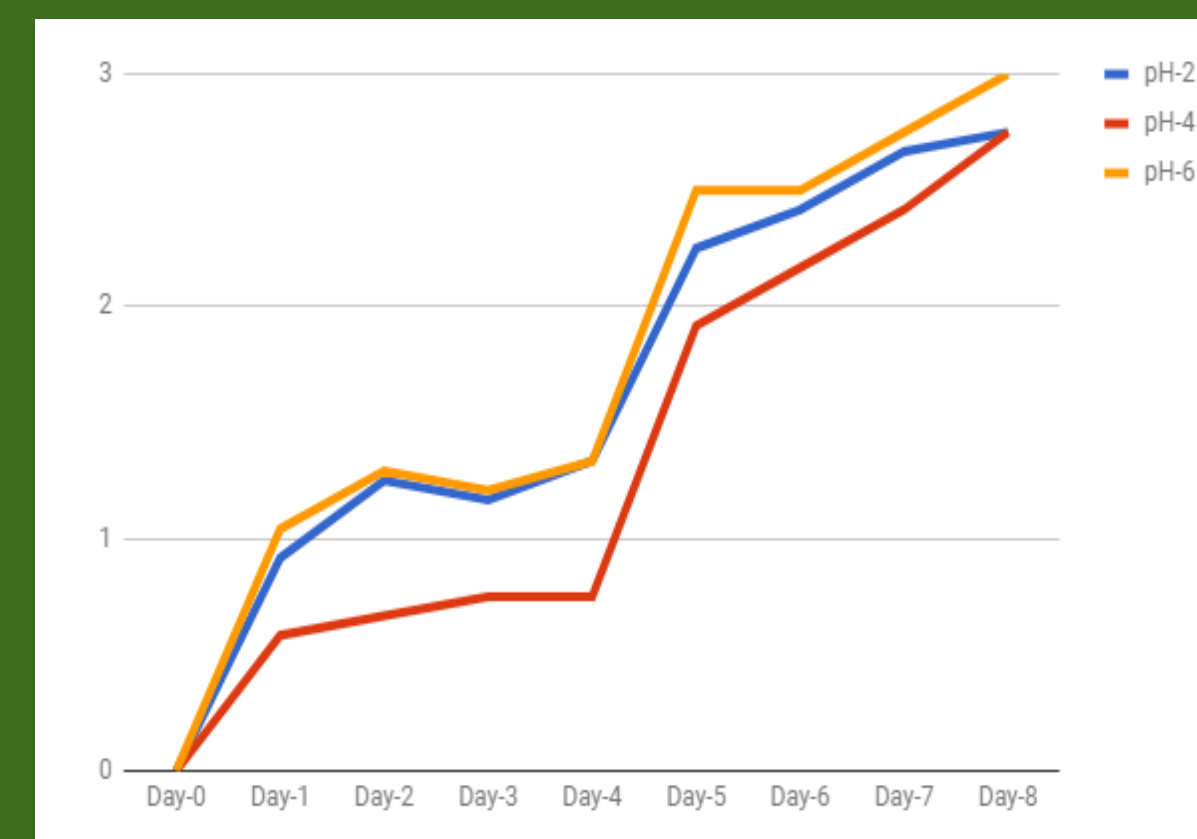
Materials and supplies that I used to conduct my experiment :

- potting soil
- Wisconsin fast plants
- water
- vinegar
- (4) foam cups
- (4) peat pots
- led bulb
- spot light lamp
- plastic jars
- (3) glass squirt bottle
- plastic table top greenhouse
- plastic squirt bottle
- ph meter



I put pots in foam cups added potting soil. I planted 3 to 4 seeds in each pot. I mixed solutions of vinegar and water to different pH levels using pH paper to determine pH of 2, 4, and 6. The fast plants sprouted and grew to the first leaf height – then, I started spraying different plants with different pH solutions. Measurements of growth were taken with a ruler every day.

Results



Graph compares average daily growth of fast plants that were treated with either pH 6, 4, or 2 solutions

Effect of pH Solutions on Stem Lengths

	pH-2	pH-4	pH-6
Day-1	0.916666667	0.583333333	1.041666667
Day-2	1.25	0.666666667	1.291666667
Day-3	1.166666667	0.75	1.208333333
Day-4	1.2/31	0.75	1.333333333
Day-5	2.25	1.916666667	2.5
Day-6	2.416666667	2.166666667	2.5
Day-7	2.666666667	2.416666667	2.75
Day-8	2.75	2.75	3

Discussion of Results

Plants treated with a pH-6 grew the most from 0 to 3 inches while the plants treated with the pH-2 grew the least 0 to 2.75 inches. Even though there is a difference, it is marginal. I believe if I had planted them all on the same day, the pH-4 treated plants would have passed the growth of the plants treated with the pH-2.

Conclusion

My hypothesis did not seem to be correct based on my experiments. The low pH -2 and pH-4 plants grew almost as well as the plants sprayed with a pH-6 (near neutral).

References and Acknowledgements

References:

- https://www3.epa.gov/acidrain/education/site_students/
- https://fastplants.org/pdf/activities/WFP_growth-development-06web.pdf

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