

How Does Light Intensity Affect the Rate of Photosynthesis in Pond Weed?

Prediction

I predict that the higher the intensity of light, the quicker the rate of photosynthesis will be in pond weed.

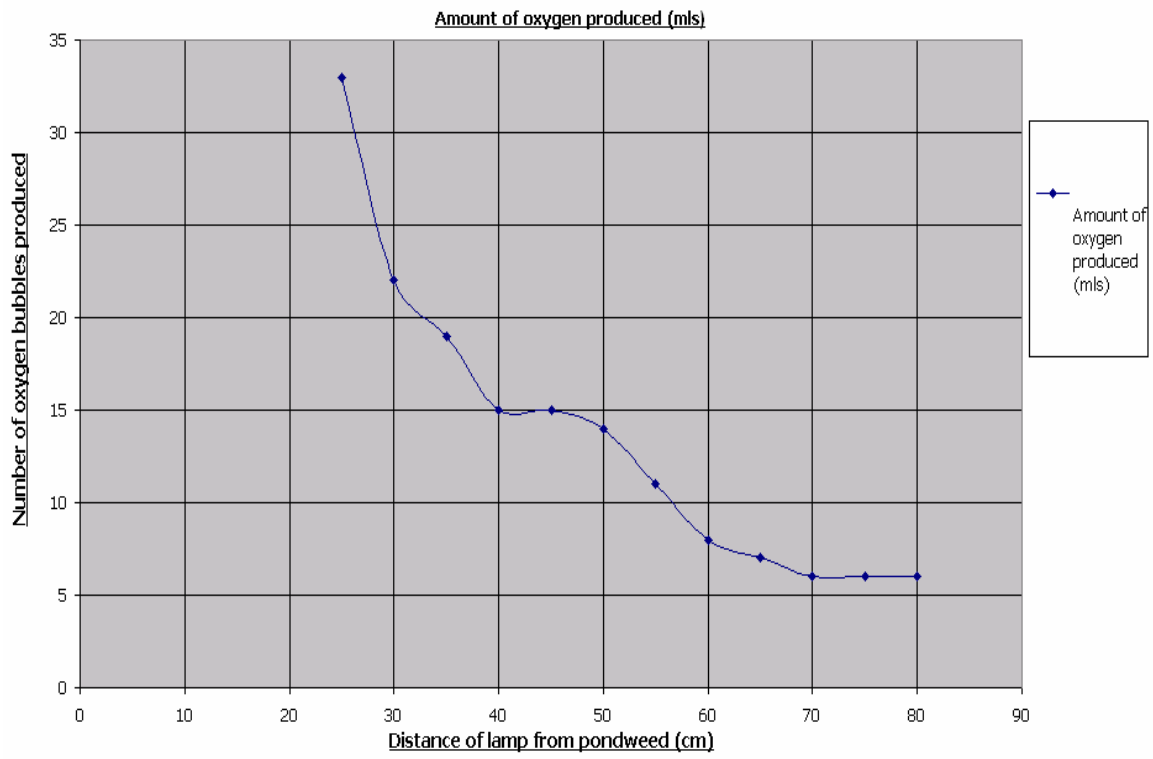
Chlorophyll is the chemical which absorbs light energy and passes it to the process of photosynthesis. This means that it acts as a catalyst upon plants for photosynthesis. Therefore, it can speed up the rate of reaction. So, if the light is not intense enough upon the chlorophyll, then it won't absorb enough light energy, which means that it won't activate photosynthesis.

I also predict that as I move the lamp away from the pond weed, the intensity of light will reduce, thus reducing the amount of oxygen produced by the plant. So, if I move the away at 25cm distance, then the pondweed will produce (an average of) 33 bubbles of oxygen. But, if the distance is 30cm, it will produce (an average of) 23 bubbles of oxygen. This means that the rate of oxygen produced will reduce steadily, when the intensity of light is reduced.

ANALYSIS

Results

Distance of lamp from pondweed (cm)	Amount of oxygen produced (mls)
25	33
30	22
35	19
40	15
45	15
50	14
55	11
60	8
65	7
70	6
75	6
80	6



The results show that when the intensity of light was high, then the rate of reaction of photosynthesis in pondweed will be quicker. This is because the results proved my prediction to be correct. Chlorophyll wasn't able to absorb enough light energy to be used for photosynthesis, when the lamp was far away. This is because the intensity of light wasn't as high as it was when the lamp was closer. So, when the lamp was 25cm away, the number of bubbles produced was 33, but when the lamp was 40cm away, the number of bubbles produced was 15. This shows a stark contrast; it also shows the difference the intensity of light makes to a plant when it needs to photosynthesise. As the lamp moved further away, the intensity of light decreased and therefore, the rate at which the pondweed was photosynthesising also decreased. There are a few anomalies, because the line isn't straight, which is what it should be.

EVALUATION

I think my method was good enough to have results from which I could draw a conclusion. But, there were a few anomalous results. This may have been due to many different factors. The anomalies could have occurred due to inaccurate conduction of the experiment. I could have conducted my experiment incorrectly, by miscounting the number of bubbles of oxygen produced, because it was quite a tedious job. I could have also timed the experiment wrong, by 5 seconds or less. The distance of the lamp from the pondweed may have been measured inaccurately. To resolve these problems of inaccuracy, I have found a few solutions. I can't do much about miscounting the number of bubbles in the test tube, although, I could drink coffee beforehand to stop me falling asleep. I could also have used a stopwatch to time my experiment correctly. To prevent inaccurate measurement of the distance from the plant to the lamp, I could double check the distance.