

Investigating the effect of light intensity on photosynthesis

Prediction

As the light intensity increases so will the rate of photosynthesis will increase also.

This is because the more if light hit's the leaf more electrons are knocked out of the chlorophyll. This is replaced by a water electron, the water electron is then broken down by photolysis ($H_2O = H_2 + O$) this produces the oxygen given off by photosynthesis

($6CO_2 + 6H_2O = C_6H_{12}O_6 + 6 O_2$). So the more light the more this will happen.

Fair test

I will make sure all another things will remain the same apart from the light intensity, I will use excess amounts of sodium hydrogen chloride to ensure the plan has enough CO_2 at all times also use more than enough water for the same reason, however the things I cannot control like temperature or sunlight this I will take into account in my evaluation.

Equipment

Beaker
Canadian pondweed
Meter ruler
Lamp
Thermometer
Sodium hydrogen carbonate
Stopwatch

Safety

I will make sure the experiment is safe I will

Wear a lab coat

Wear safety spectacles

Make sure the lamp is stable and will not fall into the beaker as we are using water and electricity

Make sure the beaker is in the middle of the bench so it has a less likely chance of falling off and smashing

Be careful when moving the lamp because it gets very hot

Method

Place a length of Canadian pondweed in a beaker with a thermometer to ensure there is no drastic change of temperature

Put excess Sodium hydrogen carbonate in the water so the levels of CO₂ will not effect the experiment

Place a light 10cm away from the beaker and leave the plant to adjust to the light for about half an hour.

Count the bubbles coming off the plant for 1 minute

Move the light 10-cm away from the light and leave for 2 minutes to adjust to the new light intensity, continue to time the bubbles for 1 min

Continue this until you reach 50 cm away

Results

Distance from lamp	Amount of Bubbles Exp. 1	Amount of Bubbles Exp. 2	Amount of Bubbles Exp. 3	Average amount of Bubbles
10cm	28	40	48	28
20cm	30	30	30	30
30cm	36	25	25	28
40cm	21	30	29	26
50cm	18	27	29	24

Conclusion

I have concluded from this experiment that light intensity dose increase the rate of photosynthesis my results prove this because the averages decrease as you reduce the light intensity.

Evaluation

My experiment I think went well on the whole there was no points on my graph, which were drastically out of place. However I could have improved my procedure a little the experiment could have been in a room that had curtains or some means of blocking out the sun. Also the room could have the experiment should be done on the same day all at once so if it is done the next day there is no change in temperature or if it is a sunny day and a cloudy one the next. The experiment could have been affected by accidents such as knocking the table or nudging the lamp.

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