BIOLOGY COURSEWORK

Investigating the Effect of Light Intensity on Oxygen Production in an Aquatic Plant.

Analysis.

The results in the table below show the results of an experiment investigating the change of light intensity on the production of oxygen in an aquatic plant, Elodea.

Distance from Lamp (cm)	Number of Bubbles per Minute
100	6
60	10
40	18
30	24
20	25

On the following page is the graph I drew of the above results. The graph was a curved graph, and I drew gradients in four sections to work out the rate of the reaction. Shown below is my working out of the gradients. The gradients show the rate of reaction in each section, between two distances.

m = gradient

$$m = \frac{\text{change in y-values}}{\text{change in x-values}}$$

A) m = $\frac{4}{13}$ (number of bubbles per min) / (cm)

m = 0.31 bubbles per min/cm

B) m = $\frac{4}{7}$ (number of bubbles per min) / (cm)

m = 0.57 bubbles per min/cm

C) m = $\frac{2}{9.5}$ (number of bubbles per min) / (cm)

m = 0.21 bubbles per min/cm

D) m = $\frac{1}{25}$ (number of bubbles per min) / (cm)

m = 0.04 bubbles per min/cm

The gradients show that, at gradient B there was more bubbles produce, so the rate of photosynthesis was the fastest at this point. At the start and end of the reaction the rate was slower but steady because of the limiting of light at the start of the reaction at 100cm, and limiting of carbon dioxide at the end of the reaction.

The findings show that as the distance from the lamp was further away from the Elodea, the number of bubbles produced was less. The further the lamp was from the plant, the less it could photosynthesis and produce oxygen. So as light intensity increased the rate of photosynthesis increased, and is limiting the rate of the reaction.