

Arefin Khan

Rate of photosynthesis: and how it varies.....

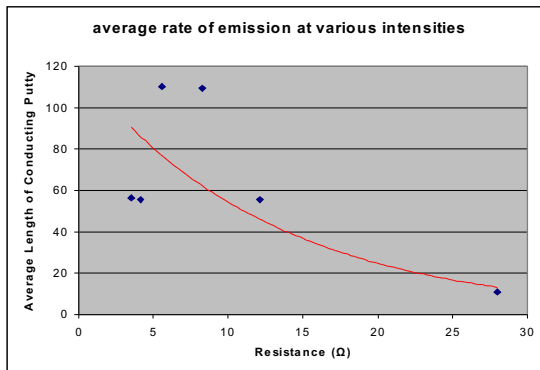
There are several things which need to be taken into account which can cause the rate of photosynthesis to change.

- A) sunlight concentration
- B) temperature
- C) chlorophyll concentration
- D) carbon dioxide availability

Effects of the variables and there concentrations:

The amount of sunlight will decide the rate of photosynthesis as there will be a an increased rate of photosynthesis due to the increased availability of photons of light. This light energy can then be transferred to chemical potential energy. The energy is then distributed around the plant and used for various reasons around it. The plant contains a lot of cellulose and it is needed in the plant cell walls and in the membranes. The osmotic pressure is kept up due to this rigid structure of the plants and so, it is very useful as a substance to make sure that everything is working smoothly within the plant. The xylem and phloem vessels. They keep the rigidity and turgidity of the plant structure here also, and as a result, water and glucose are able to travel to and from the leaves and roots.

Temperature is an important factor in photosynthesis, and it helps to regulate the smooth functioning of enzymes and such, within plants. The enzymes work best at approximately 37 degrees to survive within the hot waters of springs such as those in Greenland and other areas which are usually very cold. If the temperature Celsius. Although there are many enzymes adapted to perform at an optimum rate at temperatures much higher, there are some which are able is to high, this will denature the enzymes and thus, will also cause the rate of reaction of photosynthesis to be much slower, and the same goes for the extremely cold temperatures. The enzymes will not be able to function properly due to the fact that there will not be enough kinetic energy to cause or result in effective collisions between the enzymes and substrate molecules. Due to this, there are a lot of things which need to be done to make sure that the temperature remains constant. Due to this, there is a major advantage when manipulating the variable, and so, a control can be manipulated and made to work as made. As a result the rate of photosynthesis is calculated.



the rate of photosynthesis decreases with decreasing light intensities, and so the more light there is, the greater the rate of photosynthesis.

With a reduction is the amount water that is being supplied to the plant, there is also a reduction in the rate of photosynthesis too. This is very hard to control and examine, as the process is within the plant and very complicated processes have to be radioactive water has t be used in order for the fact to be determined that water is actually used in the reaction. The radioactive water is used as a tracer, and so, thus, the water can be seen to be used in the process of photosynthesis. As a result, it can be determined that there is a need for the water in the [process of photosynthesis, and so, the result of less water going into the plant will result in the plant photosynthesising. However, this experiment is not feasible for labs at the school, and can only take place in the sophisticated labs in only conducted at degree level.

The control of the amount of carbon dioxide will be easily carried out, and the carbon dioxide content and concentration determines how fast the rate of photosynthesis is. The more carbon dioxide, the faster the rate of photosynthesis. This is because carbon dioxide s used the process and so, the more there is, the more chance of the reaction taking place, and so, the more frequently it does take place. As a result, the carbon dioxide is a factor which can be manipulated in order to determine the rate of photosynthesis.

Method: there will be a control for each variable, and possibly two of the variables will be investigated.the investigation will be carried out in the normal lab conditions. The source of light will be the sun, and the plants will be left on a window sill, so that they recive normal sunlight. The amount of sunlight recived by the plant will be equal on all sides as there will be light shinig upon it from all sides. This will make it a fair test and so, there will be less discrepancy in the results obtained. Hence, a truer result can be obtained.

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Methodology:

Get plant

Identify leaf which is to be used as subject

Get back tape

Put tape on surface of leaf and apply firmly, so as to ensure that no light passes through or is able to reach the leaf

Make sure the the leaf is in plenty of sunlight for about 5 to 6 hours. As a result, enough time will be a destarchin gof the area were there is no sunlight

Diane broke









