Law of limiting factor

Limiting factors (Nutrients, light, water, space etc) are the factor in limited supply. The three laws explaining the effect of different factors on organism.

① Blackman's law of limiting factor

In 1905 Blackman's gave the law of limiting factors. Blackman's was a plant physiologist with his must study on limiting factor on plants photosynthesis system.

He stated that a number of factors regulate the biological process but the factor in different amount affect the process on the whole.

For example, photosynthesis requires basic components like water, sunlight in proper intensity, chloroplast temperature, Carbon dioxide, chlorophyll present in certain required amount. Any of these factors if present in scarcity will affect the rate of photosynthesis.

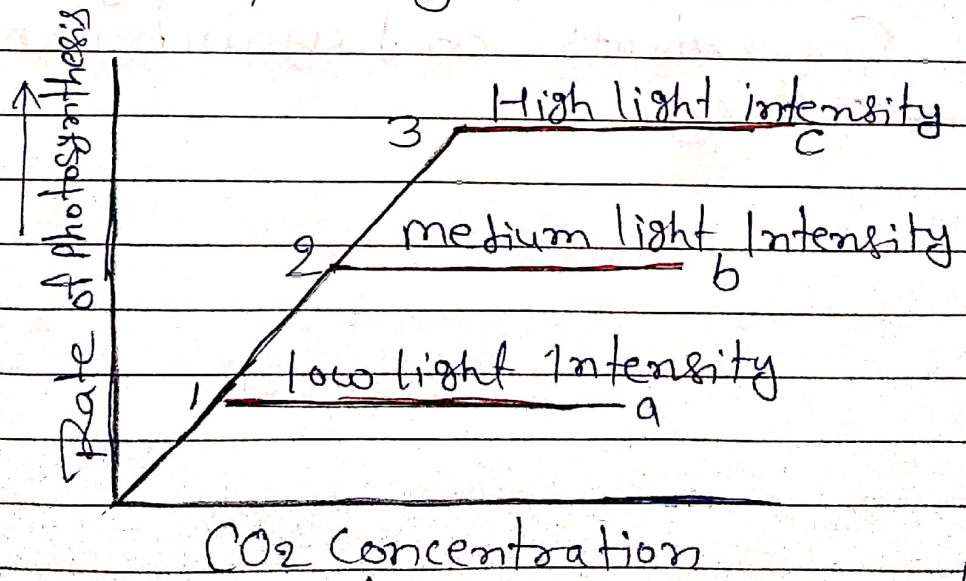


fig - Graph illustrating Blackman's law of limiting factor

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In the graph the rate of photosynthesis is depicted on y axis while Co2 Concentration in x axis. At first when the Concentration of CO2 increases, the rate of photosynthesis is directly proportional to the amount of Co2 supplied and the graph shows increase in rate of photosynthesis but after a limit any further increase in Co2 Concentration has no effect on the rate of and the rate become Constant (line 1 to a). Now at this time when the increase in Co2 has no effect on rate of photosynthesis, the intensity of light became the limiting factor. And now as we increase the intensity of light further increase in the rate of photosynthesis is achieve (Slop 2). After a point any further increase at this intensity will not affect the rate and it became constant again (line 2 to b). The rate reaches it's highest limits (Slop 3) at high intensity of light and Co2 Concentration and again became Constant (line 3 to c).

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