

Energetics of Photosynthesis with Respect to the Environment and Recently Reported New Balanced Chemical Equation

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Abstract : Photosynthesis is a physiological process where green plants prepare their food from carbon dioxide from the atmosphere and water being absorbed from the soil in presence of sun light and chlorophyll. From this definition it is clear that four reactants (Carbon Dioxide, Water, Light and Chlorophyll) are essential for the process to proceed and the product is a sugar or carbohydrate ultimately stored as starch. The entire process has "Light Reaction" (Photochemical) and "Dark Reaction" (Biochemical). Biochemical reactions are very much complicated being catalysed by various enzymes and the path of carbon is known as "Calvin Cycle" according to the name of its discoverer. The overall reaction which is now universally accepted can be explained like this. Six molecules of carbon dioxide react with twelve molecules of water in presence of chlorophyll and sun light to give only one molecule of sugar (Carbohydrate) six molecules of water and six molecules of oxygen is being evolved in gaseous form. This is the accepted equation and also chemically balanced. However while teaching the subject the author came across a new balanced equation from among the students who happened to be the daughter of the author. In the new balanced equation in place of twelve water molecules in the reactant side seven molecules can be expressed and accordingly in place of six molecules of water in the product side only one molecule of water is produced. The energetics of the photosynthesis as related to the environment and the newly reported balanced chemical equation has been discussed in detail in the present research paper presentation in this international conference on energy, environmental and chemical engineering.

Keywords : biochemistry, enzyme, isotope, photosynthesis

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