

Encyclopaedia of Photosynthesis and Photo Morphogenesis

Reena Sharma

Photosynthesis is the process of converting light energy into chemical energy and storing it in the bonds of sugar. This process occurs in plants and some algae (Kingdom Protista). Plants need only light energy, CO₂, and H₂O to make sugar. The process of photosynthesis takes place in the chloroplasts, specifically using chlorophyll, the green pigment involved in photosynthesis. Photosynthesis takes place primarily in plant leaves, and little to none occurs in stems, etc. The parts of a typical leaf include the upper and lower epidermis, the mesophyll, the vascular bundle(s) (veins), and the stomates. The upper and lower epidermal cells do not have chloroplasts, thus photosynthesis does not occur there. They serve primarily as protection for the rest of the leaf. The stomates are holes which occur primarily in the lower epidermis and are for air exchange: they let CO₂ in and O₂ out. The book is designed primarily to be used as a resource book for new researchers in plant photobiology.

Contents: An Introduction to Photosynthesis and Its Applications; Photosynthetic Antennas and Reaction Centres: Current Understanding and Prospects for Improvement; The Photosynthetic Process; Significance of Photosynthesis; New Understanding of Photosynthesis Energy Conversion; Photosynthesis Tag and Plant Food-Making Lesson; The Light Reactions of Photosynthesis; A Primer on Photosynthesis and the Functioning of Cells; Photosynthetic Environment; Phocusing on Photosynthesis in and out of the Garden; Effects of Radiation Quality, Intensity, and Duration on Photosynthesis and Growth; Phytochrome-mediated Responses.

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