Capture solar energy and use photosynthesis to produce sugars

6 · Photosynthesis is an essential activity on Earth that can fix CO 2 into sugars or other organic matter. By learning from natural photosynthesis, biohybrid artificial photosynthesis can also convert CO 2 and water to multicarbon compounds and gradually emerge as a promising sustainable technique to transform solar energy into chemical energy (1, 2).

Figure (PageIndex{4}): Photosynthesis uses solar energy, carbon dioxide, and water to release oxygen and to produce energy-storing sugar molecules. The complex reactions of photosynthesis can be summarized by the chemical equation shown in Figure (PageIndex{5}).

Most primary producers use sunlight to combine carbon dioxide and other compounds into sugars, through a process called photosynthesis. Photosynthesis is essential for all living creatures since it takes carbon dioxide (an important greenhouse gas) out of the air, puts oxygen into the air, and makes the foods that other organisms eat.

Solar energy capture, conversion into chemical energy and biopolymers by photoautotrophic organisms, is the basis for almost all life on Earth. A broad range of organisms have developed complex molecular machinery for the efficient conversion of sunlight to chemical energy over the past 3 billion years, which to th In honour of James Barber

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