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European Solar Energy Storage

Energy storage substances of cyanobacteria

Overview

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The oxygen-producing capacity of cyanobacteria is promising in the treatment of hypoxia-related diseases. Discover the latest articles and news from researchers in related subjects, suggested using machine learning. Environmental pollution and health issues are global challenges facing humanity.

Abstract The most common storage products of cyanobacteria are polyphosphate as a phospho-rus storage compound, cyanophycin or phycobilin protein pigment as nitrogen storage products, and glycogen as a storage product of both carbon and energy. Nutrient uptake kinetics are regulated by the storage.

Cyanobacteria, classically known as blue-green algae, are oxygen-producing photosynthetic organisms that are emerging as an option to achieve sustainable development goals. These Gram-negative prokaryotes can efficiently sequester atmospheric CO 2 due to an efficient carbon concentrating mechanism. Can cyanobacteria be used as a biofuel?

Synthesizing fatty acid-based compounds using solar energy as the energy source, CO 2 as the carbon source, and cyanobacteria as the biological system would be a potential technique for developing sustainable biofuels (Quintana et al., 2011).

What is cyanobacterial role in achieving green chemistry and environmental sustainability?

Cyanobacterial role in achieving green chemistry and environmental sustainability. Cyanobacterial cells use solar radiation, CO 2, water, and nutrients to produce cell biomass that can be used for various purposes. Cyanobacteria can divert atmospheric CO 2 to produce bioplastics, biofuels, biofertilizers, and other valuable chemicals.

Are cyanobacteria and microalgae a sustainable biosystem?

To overcome these challenges, greener ways of CO 2 sequestration, fertilizers, chemicals, and energy production are required without causing any negative impact on air, water, and soil. Cyanobacteria and microalgae are emerging biosystems that have the potential to fulfill future demands of sustainable food, energy, and the environment.

Can cyanobacteria be used for green chemistry?

Thus, cyanobacteria are promising CO 2 sinks that can contribute to global efforts in carbon capture and storage initiatives while producing bioenergy, cosmetics, pharmaceuticals, and several other valuable chemicals. Therefore, these blue-green cells can be used for green chemistry while minimizing the atmospheric CO 2 concentration.

Are cyanobacteria a good source of energy and bioplastics?

Although a lot of studies have been conducted where plants and crops are used as sources of energy and bioplastics, cyanobacteria have been reported to have a more efficient photosynthetic process strongly responsible for increased production with limited land input along with an acceptable cost.

Why is cyanobacteria important?

Cyanobacteria can divert atmospheric CO 2 to produce bioplastics, biofuels, biofertilizers, and other valuable chemicals. Cyanobacteria act as a CO 2 sink and can assist in bioremediation and aerobic methane oxidation by methanotrophs. 2. Cyanobacterial relevance in reducing greenhouse gas emissions

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In conclusion,it can be stated that the use ofcyanobacteria to harness solar energyfor the production of different types of bioenergy might represent a simpler and cleaner system for the production of sustainable energy.

Cyanobacterial green chemistry: a blue-green approach for a ...

In this work, we have discussed different features of cyanobacteria that can be used to sequester CO 2, and sequestered CO 2 can be diverted through their versatile metabolic chassis using synthetic and molecular biology tools to produce food, energy, valuable chemicals, bioplastics, and water treatment systems.

Formation and functional significance of storage products in cyanobacteria

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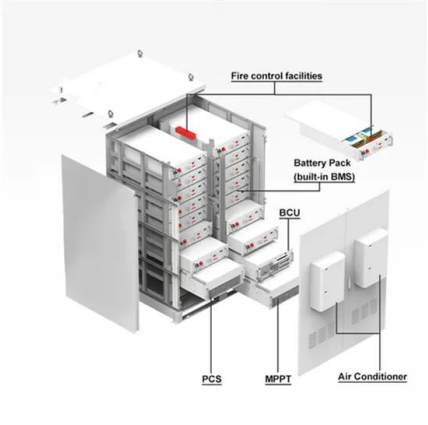
Extracellular polymeric substances in psychrophilic cyanobacteria...

Mitigation of rising levels of atmospheric CO2 can be effected three ways: revamping energy efficiency; use of bio-diesel or bio-hydrocarbons, and CO 2 sequestration. Green vegetation, algae and some photosynthetic microorganisms (Cyanobacteria) are considered most important carbon sinks globally.



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CYANOBACTERIA AS A NOVEL SOURCE OF ...

Cyanobacteria being photosynthetic, utilizes the sun's energy, water and carbon dioxide to synthesize their energy storage components, i.e. carbohydrates, lipids and proteins.

Cyanobacteria as a Promising Alternative for Sustainable ...

The purpose of this study, therefore, is to portray a suitable approach toward the production of green energy as biofuels (generations III and IV)

and bioplastics for a sustainable environment utilizing cyanobacteria as a biomass source.

Renewable energy from Cyanobacteria: energy production ...

Cyanobacteria, being photosynthetic organisms, use the sun's energy, H 2 O and CO 2 to synthesize their energy storage components, i.e. carbohydrates, lipids and proteins.

Cyanobacterial green chemistry: a blue-green approach for a ...

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Cyanobacteria for environmental, energy and biomedical ...

This review highlights the current advancements and prospects of cyanobacteria in environmental pollution control and medical treatment (Fig. 1). The advantages of cyanobacteria as bioremediation agent and the mechanisms involved in cyanobacteria-mediated bioremediation are discussed.

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