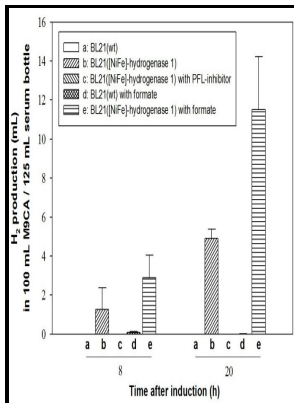


Use of immobilized hydrogenase for hydrogen production

Directorate-General Information Market and Innovation, Commission of the European Communities - Biohydrogen production by immobilized *Chlorella* sp. using cycles of oxygenic photosynthesis and anaerobiosis



Description: -

-Use of immobilized hydrogenase for hydrogen production

-

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EnergyUse of immobilized hydrogenase for hydrogen production

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Hydrogenase

It has also been much studied for its ability in the presence of oxygen, to fix carbon dioxide into complex cellular molecules using the energy from hydrogen. Song W, Rashid N, Choi W, Lee K 2011 Biohydrogen production by immobilized *Chlorella* sp.

Immobilized algal cells used for hydrogen production

The ability to remove organic carbon has been reported in numerous microalgae in mixotrophic culture systems making this attractive for use in wastewater treatment systems. Hydrogen as the cleanest source of energy is a promising alternative to conventional fossil fuels.

Microalgal hydrogen production

Understanding the catalytic mechanism of hydrogenase might help scientists design clean biological energy sources, such as algae, that produce hydrogen.

Hydrogenase

No data have been fabricated or manipulated including images to support our conclusions. On the other hand, hydrogen production is achieved by the degradation of internal stored compounds and can be increased by the addition of external carbon source.

Biohydrogen production by *Chlorella vulgaris* and *Scenedesmus obliquus* immobilized cultivated in artificial wastewater under different light quality

This cold strain was originally isolated from Lake Bonney ice-covered , Antarctica, and known to grow at low temperatures.

PHOTOBIOLOGICAL PRODUCTION OF HYDROGEN AND ELECTRICITY

Hydrogenase is a key enzyme in the photoproduction of hydrogen. Mallick N 2002 Biotechnological potential of immobilized algae for wastewater N, P and metal removal: a review. In contrast to the experiment shown in Fig.

Use of cell

According to Das and Veziroglu the high concentration of carbon source modifies the metabolic pathway and leads to production of unwanted by-products and, because of this, it is important to consider each of these factors during hydrogen production. These suggested that the maximum glucose uptake for the cultures of C.

Biohydrogen production by immobilized *Chlorella* sp. using cycles of oxygenic photosynthesis and anaerobiosis

The two approaches are complementary and can benefit one another. Investigations of the productivity of the production system have suggested and the modeling of the system has revealed a particular sensitivity to the catabolism of the produced IBT by the engineered R. In this process, water is split into molecular oxygen, protons, and electrons by photosystem II PSII.

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