Neutral lipids investigation in microalgae strain from desert

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Abstract

Drylands cover approximately 40% of Earth's terrestrial biomes supporting one-third of the world's population. The scale of their importance for biodiversity and ecosystem functioning in desert environments is only just being uncovered. As one of the driest places on Earth, Hoggar Desert is one of places where the Saharan climate is characterized by the longest photoperiod with strong solar irradiation and highest temperature .We collected some of our algae samples to identify some desirable strains for the production of algae-based biofuel, some green and prokaryotic strains were successfully isolated from Algerian sahara freshwaters, and then incubated in closed system of photobioreactors and incubators for the growth and lipids accumulation investigations.The Nile red fluorescence method has been successfully applied to the determination of neutral lipids content . *Desmodesmus communis* and *Synechocystis sp* strains showed desirable abilities of accumulating neutral lipid under diurnal 27°C and 11° C of dark cycle under (300,900 uE m^{-2} S^{-1}) fluctuations , The neutral lipid content for *acutodesmus obliquuis* and *carteria crucifera* varied of the dry biomass at the end of cultivation while carteria crucifera showed a significant neutral lipids content in the short term after nitrate starvation .The results showed that the growth rate is not constant but increased with a maximum versus continuous temperature 26°C at (120 uE m^{-2} S^{-1}) according to this various light intensities (120,300,900 uE m^{-2} S^{-1}) respectively .The results showed that the growth rate is not constant but increased with a maximum versus continuous temperature 26°C at (120 uE m^{-2} S^{-1}) . Taking the growth rates and the accumulations of intracellular lipids into the consideration of Carteria *Crucifera,Desmodesmus sp,Synechocystis salina ,Acutodesmus obliquus* ,strains were considered to have significant potential for biofuel applications. The aim of this study is also seizing the impact of the original climate on the accumulation of the intracellular lipids in microalgae from extreme area.

Image

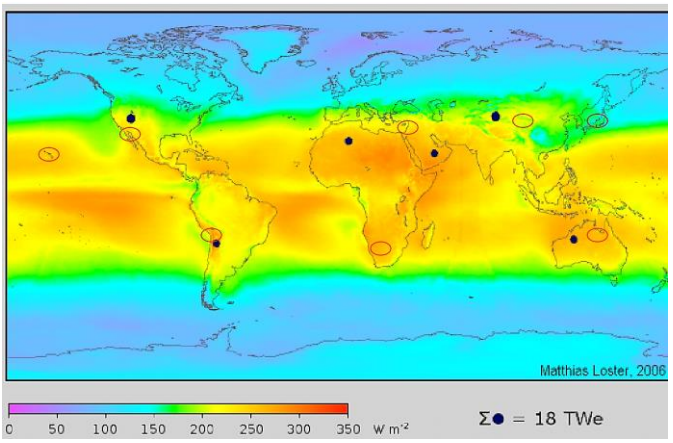


Figure1: Sunlight hitting the dark discs could power the whole world: If installed in areas marked by the six discs in the map, solar cells with a conversion efficiency of only 8 % would produce, on average, 18 TW electrical power. That is more than the total power currently available from all our primary energy sources, including coal, oil, gas, nuclear, and hydro. The colors show a three-year average of solar irradiance, including nights and cloud coverage. Sun light is the original of all the liquid fuels.

Recent Publications

1-Lylia Hamel (2017) Microalgal Species Prospecting from Different Ecological Habitats in Algeria. DOI10.5071/25thEUBCE2017-1DV.2.38
2-Previous work not yet published.



Biography Lylia Hamel is carrying out a PhD thesis on microalgae strains from Algerian desert with high value and bioactive compounds. Have a solid environmentally-related competence. Master in genomic and plant biotechnologies graduated from university of Constantine. During my studies I was interested in different research's topic ,because I always believed in "knowledge is power" .My research work in the last few years was on microalgae strains identification, Characterization ,growth performance and biomass composition (pigments and neutral lipids) from temperate and extremes water environments of different habitats, strains improvement by adaptive evolution (optimization, induction), understanding dynamics and interactions between microorganism: lylia.hamel@algaius.info