

# NAME OF THE THEME: Earth, Ocean, Atmospheric and Environmental Sciences.

## View to the Future:

## CO<sub>2</sub> sequestration by marine microalgae

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### Abstract:

Global warming as we all know is one of the giant threats to mankind and the day by day air pollutant concentration increment leads us to a simple conclusion that CO<sub>2</sub> concentration is way past the optimal concentration in environment and is exponentially escalating every second.

The rapid increase in atmospheric concentrations of the three main man-made greenhouse gases is clear from the data sets for these gases over the last 1000 years. Since around the time of the industrial revolution in Western countries levels of carbon dioxide, methane and nitrous oxide. Moreover, the automobile exhaustion is leading to further addition of CO<sub>2</sub> in atmosphere.

Many of the observed warming changes since the 1950s are unprecedented in the instrumental temperature record, and in historical and paleoclimate proxy records of climate change over thousands to millions of years.

*Chlorella Vulgaris* is one of the most efficient marine microalgae having the highest CO<sub>2</sub> sequestration rate (Michele Aresta et al., 2005; Angela Dibenedetto., 2005; Grazia Barberio).

A series of 3 consecutive vertical column photobioreactor would further enhance the biological reaction (Geetanjali Yadav et al., 2015; Ankush Karemore., 2015; Sukanta Kumar Dash., 2015; Ramkrishna Sen., 2015). The NO<sub>x</sub> and SO<sub>x</sub> exhausted can be treated and can be used as nutrition for algal growth.

A model can be made from this. Exhaust from car will get condensed and stored in a tank which maintains optimum pressure and temperature. After a certain interval, the tank can be fitted to an algal bioreactor designed as mentioned above for the fixation of CO<sub>2</sub> and release of O<sub>2</sub> as well as production of ingredient for biofuel will also get produced (algal biomass).

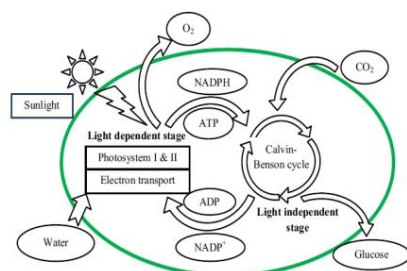


Fig. 1. Light dependent and light independent stage during photosynthesis.

