

EPCAHP

EPCAHP (Economical Photobioreactor providing Clean Air and High-Protein diet) is a project I made for the Google Science Fair in 10th Grade.

I was looking for ways to capture CO₂ from the atmosphere and came across an article about phytoplankton. That they absorb more CO₂ than trees in the rainforests.

I found out that algae are way better at absorbing CO₂ compared to trees, which got me thinking, why not develop devices or infrastructure around algae to capture the CO₂ in the atmosphere. I.e., the integration of photobioreactors with the common infrastructure.

For the project I made my own photobioreactor at home for the cultivation of Spirulina, which is a type of algae used to make nutritional supplements. The photobioreactor is designed specifically to boost the growth of Spirulina.

The cylindrical structure allows Spirulina to move freely, the red lights are installed at the center as it is found out that Spirulina has a higher rate of photosynthesis if placed in red light and the air is pumped from below to create a circular motion.

EPCAHP - Journey to build an optimal prototype

