Ecosorb: Transforming Impure Air into Pure Air

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ABSTRACT

Urban air pollution is a major global health hazard, since exposure to out door ambient particulate matter is associated to nearly 4 million deaths each year. Cities in developing countries are frequently disproportionately affected by dangerously high levels of air pollution due to their reliance on antiquated energy sources like coal-fired power plants. For example, car emissions rise with population growth, and pollution levels might reach five times according to WHO guidelines. Many cities lack sufficient space for tree planting, despite the fact that doing so could improve urban greening and lower pollution. An innovative method called "ecosorb" a device that uses sunlight to create oxygen and absorbs CO_2 is examined in this study. One ecosorb is said to be able to clean as much air as 200 square meters of lawn. Additionally, it has the ability to remove organic materials, nitrogen, phosphorus, and pollutants from water. The gadget also has lighting and device charging capabilities. By swift lyin stalling this solar-powered device in highly polluted urban areas with little space for trees, cities could greatly improve the quality of their air. According to lab test results, one ecosorb unit may absorb as much CO_2 as two mature trees. Within a month, a 5L ecosorb device was able to absorb up to 1215 ppm of CO_2 gas. This makes the atmosphere more environmentally friendly and greener in addition to lowering the amount of CO_2 in the air.

Keywords: Ecosorb, Particulate Matter, Air Pollution, Carbón Dioxide, Pollutants.

INTRODUCTION

Trees mitigate air pollution and climate change by absorbing carbón dioxide and releasing oxygen. Trees cannot, however, be planted within buildings such as homes, offices, and entertainment venues. Due to a lack of space and nutrient-rich soil, trees' capacity to thrive even out doors in densely populated urban settings is restricted. Along with the above mentioned issues, pollution prevents plants from growing healthily, increasing the likelihood that they will fall and cause damage or harm from winds or other harsh weather conditions.

An inventive solution that can absorb CO_2 from the air and purify the environment without causing any harm was initially created in Turkey to address this issue.

One of the remedy for air pollution is liquid tree. It uses carefully chosen microalgae that can remove CO_2 from the atmosphere and provide fresh air. Like other plants, it doesn't require daily watering; it only needs to be placed where it will receive the most sunlight and air exposure. It has the ability to absorb harmful air pollutants like carbón monoxide (George, 2023) (Bikis, 2023) (Rawat and Roushan 2023) (Vos *et al*. 2013).

OBJECTIVE

An environmentally acceptable technique for biological carbón sequestration that removes heavy metals and other impurities from water. It makes use of materials found in nature that promote biodiversity.

METHODOLOGY

- Five liters of water and culture are hung inside a cylindrical container that is vertically oriented as part of the ecosorb setup.

- The cylinder is roughly two to four feet high and one to three feet broad.
- Transparent plexiglass makes up the primary body, which lets sunlight enter for photosynthesis.
- The interior is lined with a variety of LED lights to provide the best possible illumination all day and night.
- A solar panel canopy mounted on top of the cylinder powers the lights. In order to store electricity, this solar array also charges a battery.

RESULT

Quantitative Analysis

Pollutant	Day 1 (ppm)	Day 2 (ppm)	Week 1 (ppm)	Week 2 (ppm)	Month1 (ppm)
CO_2	100	350	660	800	1215

Qualitative Analysis

Nitrogen was analysed in the water sample.

CONCLUSION

- Ecosorb is a very innovative approach to combating air pollution by reducing carbón emissions and improving air quality.
- Pakistan's rapid urbanization has resulted in a daily loss of greenspace, which has a significant impact on the environment and public health. By using this technology, Pakistan might improve the quality of life for its citizens and make cities more livable.
- The ecosorb, which can clean the environment, release pure oxygen, and absorbs carbón dioxide, is a potential approach to blend technology and nature.

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