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Making Oxygen Bottles Using Chlorella Algae

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Abstract:
Oxygen is essential for human survival, and the demand for oxygen support has increased due to respiratory diseases, environmental pollution, and post-pandemic health conditions. Conventional oxygen cylinders are often expensive, heavy, and difficult to access during emergencies, particularly in low-resource and remote areas. This research paper presents an eco-friendly and sustainable approach to oxygen generation using Chlorella algae, a freshwater microalga known for its high photosynthetic efficiency. The study demonstrates a simple experimental setup in which Chlorella is cultivated under controlled conditions to produce oxygen, which is then filtered, dried using silica gel, and collected in an airtight container. Although the system is not intended to replace medical-grade oxygen, it highlights the potential of algae-based oxygen generation for educational, experimental, and emergency-support applications.

Keywords: Chlorella algae, photosynthesis, oxygen generation, sustainable technology, eco-friendly innovation

1. Introduction

Oxygen is the most fundamental requirement for human life. Patients suffering from asthma, lung infections, heart diseases, and post-COVID complications often depend on oxygen support for survival. During emergencies, natural disasters, or health crises, the availability of oxygen cylinders becomes limited due to high cost, transportation difficulties, and storage challenges.

2. Objectives of the Project

• To study oxygen production using Chlorella algae
• To develop a simple and eco-friendly oxygen generation model
• To promote sustainable and green technology

3. Materials and Methodology

Materials Used:
Chlorella algae culture, transparent glass tank, water with nutrients, light source, micro-hole sponge, N95 cloth, filter paper, silica gel, tubing system, airtight container.

4. Results and Observation

Continuous oxygen bubble formation confirmed active photosynthesis.

5. Conclusion

This project demonstrates that nature provides sustainable solutions through algae-based oxygen generation.

BIBLIOGRAPHY:

1. EHow. (n.d.). How to grow chlorella.