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Biofuel Production from Algae (Dry Procedure)

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ABSTRACT

We collected Algae samples from the Mula-Mutha Riverbanks at Sangam Bridge and Bund Garden in Pune. The algae collected could be classified majorly into types of Chlorophyceae (Green-algae), Cyanophyceae (Blue-green), Bacillariophyceae (Diatoms) and Euglenophyceae (Eugenio's). The slurpee is then subjected to CO_2. This leads to release of Oxygen gas. We Produced an algae slurpee and then extracted all the water. This gave us dry Algae biscuits. We extracted oil from these biscuits. We referred to various research papers and confirmed that the algae could be used for producing bio fuel.

Keywords: Algae, Bacillariophyceae, Chlorophyceae, Cyanophyceae, Euglenophyceae ,

I INTRODUCTION

Due to the visible depletion of fossil fuels like crude oil, the world is turning to various available fuel sources. One of such many sources is Biofuel. Currently various crops such as sunflower, sugarcane, coconut, rapeseed, soybean, jatropha, karanja and also used fried oil and animal fats are used. But these crops cannot be used on a large extent to produce biofuel as the are edible items and they are needed for different more important reasons and also their prices are a major factor affecting their use. So the other non-edible and available in plenty sources for production of biofuel are various types of algae. Algae is one of the fastest growing and consisting more energy producing properties when compared to other plants growing on Earth.

Name of Crop	Oil Obtained (L/ha)	Land Area Cultivated in India (M ha)
Soybean	446	5.9
Sugarcane	354	4.1
Rapeseed	1054	6.7
Sunflower	857	1.9
Algae	57,000[a]	9.6

a: These readings are for the "Dry Algae Process"

II TECHNIQUE/PROCEDURE

The obtained algae was then subjected to CO_2 Gas. The algae gives out Oxygen gas. Thenthis algae obtained was made into a mixture of consisting of 40% Algae and 60% Water and blended to form a slurpee. The water was then extracted to form dry algae biscuits with moisture content of roughly 7% to 10%. Then we extracted the oil from these biscuits. We compared the properties of the obtained oil with those from the various Research Papers related to the subject of our research.

Substance	Viscosity 40°C(mm^2/sec)	pH Level	Density g/cm^3
Algae	3.9	7	0.84

III RESULT

By comparing the Physio-chemical properties such as pH, viscosity and density of the final obtained product and those specified by IS 15607, we can say that Algae is a suitable substance for producing Biofuel.

Advantages of Biofuel

1] Algae can be grown in plenty with the use of minimal resources.

2] Algae releases chemicals in the water in which it grows which are harmful for the aquatic life. By using algae, we help to save the aquatic life.

3] Biofuel produced from algae are almost 50% cheaper than fuel extracted from crude oil.

4] Biodiesel, Natural Gas and Bio petroleum can be extracted from Biocrude oil.

5] Resources and time required to produce biofuel is comparatively less.

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