

GROWTH OF ALGAE CHLOROCCUM SP.– CULTIVATION IN SALT WATER WITH OIL WASTE FOR BIOFUEL PRODUCTION

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Abstract: This study focuses on effect of salt water and oil waste on algal growth. Oil floats on water and as a result there might be hindrance in the supply of sunlight and carbon-di-oxide (essential for growth of algae). The effect of oil on growth of algae is to be studied. The concentration (weight change monitoring) was checked to study the growth of algae.

1. Introduction:

An oil spill is a release of a liquid petroleum hydrocarbon into the environment due to human activity, and is a form of pollution. The term relates to marine oil spills, where oil is released into sea, ocean or in general coastal waters. It includes release of crude oil from tankers, offshore platforms, drilling rigs and wells, spills of refined petroleum products like gasoline, diesel and their by-products. It also includes heavier fuels used by large ships like bunker fuel, spill of any oily refuse or waste oil. Oil spill is a big environmental concern. Algal growth on the spills are to be monitored as to check whether Algae has the potential to clean up the spill.

Algae are large group of diverse, simple, autotrophic organism. They are both unicellular and multicellular. They are photosynthetic like other green plants. Algae can be a fresh water or marine algae. In recent years there has been a rapid growth in investigating the use of algae to produce lipids as a replacement for fossil fuels (Hossain et al. 2008). Biofuel are biodegradable and emit less Carbon-di-oxide. Researchers have investigated the types of algae and there yield under various environmental conditions.

2. Objective:

The objective of this study was to investigate the growth of algae in salt water with oil waste. The effect of oil waste on the growth of algae is the main aim of this study.

3. Materials and Methods

3.1 Collection of Algal strain and media for growth: The algae strain was collected close to a swimming pool and based on microscopic study, the strain was identified as Chlorococcum. The Algae is grown in salt water media with oil. Sodium Chloride salt was added and the concentration of the salt was 0.5 M/4L of water. 20 mL of engine oil was added to the reactor with the algae inoculants. The reactor was kept on a shaker with a magnetic stirrer at room temperature and close to window to ensure presence of sunlight.

Method: The algal growth was measured by checking change in weight of the sample. The weight at Day 1 and weight at Day 7 was monitored in order to check weight loss.

4. Analysis:

The graph below shows the growth of Algae in oil waste and salt water. The weight change was observed from the reactor. The algal concentration was 3 mg/L in the reactor at Day 1 and the concentration of the algae reduced about 0.9 mg/L at Day 7. This shows that the algae growth is affected due to the presence of oil because oil reduces the photosynthetic efficiency of algae due to improper circulation of carbon-di-oxide and sunlight (Martineza et al 2010).

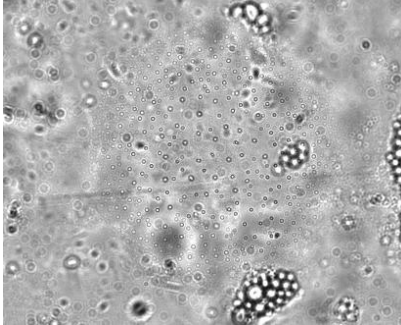


Fig.1 – Microscopic image of algae

5. Conclusion:

Based on the analysis, there was reduction in the growth of Algae (*Chlorococcum*) in oil media due to inhibition of photosynthesis.

6. Acknowledgement:

This study was supported by the Texas Hurricane Center for innovative technology (THC -IT) with funding from various industries.

7. Reference:

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