The Effects of Sodium Bicarbonate Concentration on the Growth Rate of Chlorella

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This experiment examined the effectiveness of sodium bicarbonate as a nutrient for algae growth and oil production. The algae was grown in three different concentrations of sodium bicarbonate. Oil was recovered using the Soxhlet extraction process and rotary evaporator. Both processes were performed to extract oil from the dry samples of algae of the three different concentrations. During the Soxhlet extraction, hexane was added to the extractor and evaporated which drew out the oil from the samples. In order to remove the hexane from the three samples, the rotary evaporator was used to put the solvent under a vacuum to extract the hexane from the value of oil. Once the oil was completely extracted, the flasks were weighed to determine how much oil came from the algae samples. Sodium bicarbonate proved to be an effective nutritional supplement, but only at specific concentrations. The 0.1 Molar concentration of sodium bicarbonate produced a statistically significantly higher rate of growth and also produced the highest percentage of oil recovered. This research proves to be a promising step towards the use of the algae as a potential source for biofuel, as producing algae quickly with a higher oil content will reduce production cost and time.

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