Effects of Neodymium Magnetic Fields on Rhizoclonium Algae

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Our experiment is to measure the correlation between the effects of magnetic fields on Rhizochlonium Algae growth to potentially increase the efficiency of Algae biofuel production. 25 grams of Rhizochlonium Algae from Sanibel Wildlife Conservation Foundation was obtained for the purpose of experimentation. Using 5 separate test tubes, placing approximately 1 gram of algae in each tube with a nutrient medium, varying amounts of N-42 grade Neodymium magnets to induce orderly magnetic fields measured in millitelsas. Magnets were placed in each tube with an exception of the 5th test tube as a control. Using 5 separate LED-grow lights to provide light energy for the essential photosynthetic processes, we measured a direct change in biomass after a 1-week trial. We conducted 5 separate 1-week trials. In conclusion, this study investigated how magnetic fields set parallel to incoming electromagnetic radiation can affect the biomass increase in autotrophic algae. There was a maximum of 5.28% increase in average final mass with a 613 millitesla field compared to the average growth of the control group, agreeing to a large extent to the formulated hypothesis. The data from this study could be used to increase the growth rate of algae in an effort to improve the efficiency and maximum yield of algae, increasing sustainability and lowering the economic cost in development of algae-derived biofuel, due to its multiple environmental benefits as compared to corn-derived ethanol biofuels.

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