Nutrient Manipulation in C. moewusii to Activate [Fe-Fe] Hydrogenase Reserves: A Continued Study in Increasing the Cost-Efficiency of Green Hydrogen Fuel Production

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Future energy sources must be renewable and environmentally neutral to counteract the effects of the immense volume of carbon emissions that are released into the atmosphere by burning fossil fuels. While hydrogen photo-bioproduction by green algae meets these requirements, its cost often dissuades individuals from implementing hydrogen production facilities for large-scale energy production. This being said, the hydrogen producing ability of a particular green algae, C. moewusii, is a promising area of research that is key to perfecting a clean, cost-efficient method of producing hydrogen gas. This field of research, however, has ignored a phenomena in a different algae that may yield significantly more hydrogen. By making use of the observation that C. moewusii produces on average three times as much inactive [Fe-Fe] hydrogenase than C. reinhardtii, the process of producing clean hydrogen gas for use in hydrogen fuel cells could be made to be significantly more cost and resource efficient.

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