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**The Collins-Miller Project- New Discovery in Algae Biofuel Industry**

**DUBLIN, Ohio.,** (February 27, 2015) – Ever since her seventh grade science fair project, 16 year-old Madeleine Gagné has been trying to create an environmentally friendly algae-based biofuel. As of February 2015, Gagné and co-worker Angela Miller’s laboratory results from The Ohio State University show that a new efficient DHA and seaweed-based fuel with the possibility of carbon-neutrality is a possibility. Going under the title The Collins-Miller Project, Gagné and her mentor Miller now seek a company willing to purchase the research for industrial application.

Gagné’s interest in algae biofuel started mainly in her middle-school career, as she explored the topic for her seventh grade science fair project. Finding success in both the results and the competition, Gagné continued the project into her eighth grade year, entering it again into the science fair. Wishing to pursue the idea further, Gagné contacted The Ohio State University’s Biochemistry Department out of need for machinery, which put her in touch with Miller. Gagné and Miller soon set to work to create a fuel that would skip the high energy cost process of refinement, drastically cutting down on energy costs.

During the Dec. months, both Gagné and Miller investigated the possibility of using the fatty-acid DHA (Docosahexaenoic Acid) instead of triglycerides (heavy compounds chemically similar to that of vegetable oil). Though the use of a methyl esterification reaction, the DHA could become a combustible diesel fuel compatible in car engines. Despite being abundant in the algae, this was successfully tested on Jan. 23rd, 2015 on stock DHA. Due to the algae’s natural biology, any carbon dioxide released from this combustion was previously absorbed during photosynthesis, thus producing no net change in the amount of CO2 emissions during combustion, making the fuel even more effective. This does not however factor in net CO2 emissions for the whole experiment. In the upcoming summer months, Miller and Gagné look forward to testing their results on a larger scale, extracting higher amounts of DHA from freshwater algae and perfecting the transition from algae-DHA to a methyl ester.

In addition, Gagné hopes to find a way to apply her research industrially. As a 16 year-old sophomore from Dublin Coffman High School, Gagné does not have the resources to accurately start a biodiesel company, and instead looks towards selling off her research to any fuel-based corporation interested. “I have just always wanted to make a difference in the world,” says Gagné at her Columbus Dispatch interview. “Although I don’t have the resources at this age, I hope that some corporation could help us achieve this dream and make the world a whole lot cleaner.” Gagné and Miller continue to search for an interested corporation, and hope to find one through more publicity, but plan simply to publish their results if not offered a licensing opportunity. The rural Ohio group of two plans to present in DC, during The National Science and Engineering Festival.

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