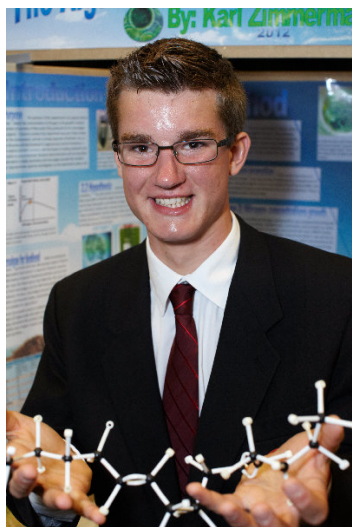


CWSF 2012 - Charlottetown, Prince Edward Island



Karl Zimmermann

The Algal Alternative: A Biofuel Investigation

Challenge: Innovation

Category: Senior

Region: Algoma Rotary

City: Echo Bay, ON

School: Korah Collegiate & Vocational School

Abstract: Microalgae provide a very costly source of biofuel; this experiment explored how the synthesis of fatty acids by *Chlorella vulgaris* were affected under nitrogen-deprived growth conditions. *Chlorella vulgaris* strains were cultivated and exposed to six different nitrogen-concentrations. Cell extracts and media filtrates were subjected to TLC, testing for fatty acids. Concluding, increasing concentrations of nitrogen produced greater varieties of fatty acids within *Chlorella vulgaris*.

Biography

I am a graduating grade 12 student from the International Baccalaureate Diploma Programme at Korah Collegiate in Sault Ste Marie, Ontario. I am an avid environmentalist, and president of my school's environmental club, Green Council. I am extremely intrigued by the interactions between living cells and molecules, and so I hope to pursue biochemical research. In the fall, I hope to study at McMaster University, and become a scientific research in an area such as biofuels or pharmaceuticals. From these passions, I developed my project increasing the yield of biodiesel from microalgae by altering the nitrogen concentrations in the growth media. I was extremely interested and inspired by the results of this experiment, and I'm excited for opportunities I will have in the future to further investigate this potential. For other students, I would suggest to pursue your passions. Don't wait for opportunities to arise, go out and seek them. Start your own experiments, and the you will be thrilled and inspired by the results.

Awards

Value

| | |
|---|----------------|
| Excellence Award - Senior - Bronze Medal Sponsor: Nuclear Waste Management Organization | \$300 |
| University of Ottawa Entrance Scholarship Senior Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Ottawa | \$1 000 |
| Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University | \$1 000 |
| Total | \$2 300 |