

## CWSF 2019 - Fredericton, New Brunswick



### Jodh Singh Nahal

#### Optimizing MFCs With a Novel Approach and Controlling Eutrophication

**Challenge:** Energy

**Category:** Intermediate

**Region:** Cariboo Mainline

**City:** Kamloops, BC

**School:** Sa-hali Secondary

**Abstract:** To optimize MFCs' (Microbial Fuel Cells) current production, I tested the effects of wastewater's 5 parameters: COD, TSS, pH, TN, TP, and 4-other MFCs' parameters, on MFC's current generation; and found that a highly statistically-significant correlation exists, and MFC's current can be increased by 37-times. Also, I conducted 6 different treatments and found that eutrophication can be reduced 'naturally' by 83%, without the anaerobic-aerobic treatments.

#### Biography

I'm Jodh Singh Nahal, a grade-9 student. I love science, math, and soccer. Twice- in grade 4 and grade 8, I ranked #1 in all of Canada in a national-level math contest. Both times, I scored 100%, became the Canadian champion and won the top medal. I was on the front full-page of the newspaper-Kamloops This Week. I also won 10 other awards in different math competitions at different levels. In the past 4-years, at the regional science-fair, I won a total of 12 best-category awards and a gold medal each-time. It's my third consecutive year to the CWSF and I've won 2 Silver Medal Excellence Awards and a Challenge Award at the CWSFs, which is very motivating. I play a musical instrument, Harmonium, for the past 5-years and I'm still learning. I'm playing soccer for 9-years now and currently I'm on school's soccer and volleyball teams, and won a couple of MVP titles. Solving energy and environmental issues are close to my heart, and I'm highly inspired by MFCs' potentials, so that's why I choose this project. Keeping up my passion, I aspire to pursue a degree in STEM at the university. To others, I would say work-hard!

#### Awards

#### Value

Renewable Energy Award - Intermediate Sponsor: Ontario Power Generation	\$750
Excellence Award - Intermediate - Bronze Medal Sponsor: Youth Science Canada	
Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University	\$1 000
<b>Total</b>	<b>\$1 750</b>