

## CWSF 2014 - Windsor, Ontario



### Nart Barileva, Aagnik Pant

#### Solvent-Based Cellulose Crystallinity Minimization to Improve Biofuel Production

**Challenge:** Energy

**Category:** Senior

**Region:** Bay Area

**City:** Oakville, ON

**School:** Abbey Park H.S.

**Abstract:** Biofuel production requires the pre-treatment of cellulosic biomass to increase glucose conversion by minimizing cellulose crystallinity. To determine the best pre-treatment, sulphuric, hydrochloric, phosphoric, and acetic acid were tested with sodium acetate as the control. The most effective treatments were sodium acetate and acetic acid; organic compounds generally out-performed mineral acids. These findings could be a potential stepping stone for further research on biofuel production.

#### Biographies

**Nart** - Ever since I've been capable of feeling a sense of curiosity towards the world around me, this curiosity has engulfed me; I like to say that I have an insatiable thirst for knowledge. I spend most of my time learning new things, nearly always about either science or mathematics. I'll read almost anything relating to these fields and, most of the time, it's material that most of my peers find to be incredibly dull and boring, but I can't help but to be fascinated by it. I love taking online university courses and teaching myself mathematics, physics, and chemistry. I'm not quite sure what I would like to study after high school, but I'm defini...

**Aagnik** - Ever since I learned to ask questions, I've always craved for more knowledge. It's this desire to know more that lead me to work on the science fair with my partner. When my partner came across a passage in his chemistry textbook regarding the production of biofuels, I felt not only a personal curiosity but also a moral obligation to research further into this type of alternative fuel. This is because I believe the onus rests on every individual to take care of the earth, our only home. If there's any student reading this, thinking of doing a project, I strongly urge you to pursue it. All you need to get started is a little curiosity, a good ...

#### Awards

#### Value

Excellence Award - Senior - Silver Medal Sponsor: Youth Science Canada	\$300
Dalhousie University Faculty of Science Entrance Scholarship Senior Silver Medallist - \$2500 Entrance Scholarship Sponsor: Dalhousie University, Faculty of Science	\$2 500
UBC Science (Vancouver) Entrance Award Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: The University of British Columbia (Vancouver)	\$2 000
University of Ottawa Entrance Scholarship Senior Silver Medallist - \$2000 Entrance Scholarship Sponsor: University of Ottawa	\$2 000
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
<b>Total</b>	<b>\$8 800</b>

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