

## CWSF 2014 - Windsor, Ontario



### Smruthi Ramesh, Karishini Ramamoorthi

#### Go With The Flow: Benzoquinone-Fulvic Acid-NaCl Flow Battery

**Challenge:** Energy

**Category:** Senior

**Region:** Peel

**City:** Mississauga, ON

**School:** Port Credit S.S.

**Abstract:** Our project tests to determine if benzoquinone, derived from rotting *Musa paradisica* and *Solanum Tuberosum* with fulvic acid, citric acid, or acetic acid will formulate an efficient anode for use in flow batteries to store renewable energy. We concluded that the banana benzoquinone, acetic acid and fulvic acid anode, with the NaCl solution cathode, performed more efficiently than the vanadium redox flow batteries currently employed.

#### Biographies

Smruthi - My name is Smruthi Ramesh and I attend Port Credit Secondary school and am part of the Scitech program. I enjoy reading, drawing and dancing. In the future I hope to become a researcher in the field of biology. Participating in the Science Fair is really important to me; it has taught me a lot about the restrictions placed on the implementation of renewable energy such as its storage, which is the basis of our current project. I have really enjoyed the process of creating this project and enjoyed the satisfaction of completing it. My partner and I hope to further test our flow battery and develop it into a viable application for storing interm...

Karishini - My name is Karishini Ramamoorthi, and I attend the Sci-Tech program at Port Credit Secondary School. I enjoy playing the violin, and dancing in my spare time. This year, my partner and I have focused our research on formulating efficient anodes and cathodes for use in a flow battery to store renewable energy. We hope to further test our flow battery to develop it for large scale implementation. This project has taught me to be persistent, work hard and to pursue my passion for science outside of school. The whole science fair experience has been a great opportunity for me, allowing me to meet different people from across Canada.

#### 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>