

# CWSF 2009 - Winnipeg, Manitoba



## Sapna Shah

### Potential Use of Microencapsulated Live Yeast Cells in Treating Kidney Failure

**Division:** Life Sciences / None

**Category:** Senior

**Region:** York

**City:** Markham, ON

**School:** Markham District H.S.

**Abstract:** When kidney loses its function, it leads to uremia, a complicated syndrome in which waste metabolites, water and electrolytes accumulate in the body. There is a demand for a more feasible novel alternative to current renal replacement therapies. This project involved designing an APA (Alginate-Poly-L-Lysine-Alginate) microencapsulated yeast column bioreactor and investigated its capacity in vitro to hydrolyze urea and control other waste metabolites and electrolytes.

#### Biography

I am a Grade 11 student at Markham District High School. I am passionate about health science and to further expand this interest, I volunteered at a research lab last summer at a reputed University. Research experience has been a great learning process for me as it has provided me with academic knowledge to participate in this science fair. I want to pursue a career in scientific research. Some of my other achievements are; received a full scholarship to attend Shad Valley International this summer, placed in top 5 in the DECA provincial competition and qualified to compete at the international level in 2009, received a Gold Medal for highest overall academic average in grade 10 and a Silver Medal for second highest overall academic average in grade 9. I am part of the LEAD program at school, through which I have organized many charitable events and have collectively raised more than \$20,000 to build schools in Sierra Leone. I am the Treasurer of DECA and Vice-President of the Classics Club. I am volunteering at Markham Stouffville Hospital for the last 3 years and tutor a community class. Participating in the science fair is a truly enriching experience.

#### Awards

#### Value

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| Dalhousie University Faculty of Science Entrance Scholarship<br>Senior Silver Medallist - \$2000 Entrance Scholarship<br>Sponsor: Dalhousie University, Faculty of Science | \$2 000        |
| UBC Science (Vancouver) Entrance Award<br>Senior Silver Medallist - \$2000 Entrance Scholarship<br>Sponsor: The University of British Columbia (Vancouver)                 | \$2 000        |
| The University of Western Ontario Scholarship<br>Silver Medallist - \$1500 Entrance Scholarship<br>Sponsor: University of Western Ontario                                  | \$1 500        |
| University of Ottawa Entrance Scholarship<br>Senior Silver Medallist - \$3000 Entrance Scholarship<br>Sponsor: University of Ottawa  | \$3 000        |
| Silver Medal - Health Sciences - Senior<br>Sponsor: Canadian Institutes of Health Research   | \$700          |
| <b>Total</b>   | <b>\$9 200</b> |