

## CWSF 2018 - Ottawa, Ontario



### Mohammed Al-Seragi

#### Don't Meddle With Metal: The Remediation of Pb(II) Wastewater

**Challenge:** Environment

**Category:** Intermediate

**Region:** Greater Vancouver

**City:** Vancouver, BC

**School:** R C Palmer Secondary

**Abstract:** A filtration composite was made from chemically-modified orange peel and general eggshells to extract Pb(II) in wastewater. Thereafter, a PVC pipeline extension device was created with the filtration composite, along with carbon and microfiber pads. Nowadays, pipelines contain lethal lead corrode. Because pipeline replacements can reach upwards of \$10 000, developing a cheap and effectual device would tackle the challenge of practical water purification.

#### Biography

Hello, my name is Mohammed Al-Seragi! For the longest time now, I've used Science Fair as a medium to demonstrate my interests in chemistry. Provided that, problem-solving becomes far more satisfying because those "problems" can often be solved with a bit of science. Last year, I investigated lead wastewater remediation using activated carbon. After discovering its slightly inconvenient price and efficiency, I was prompted to push my boundaries further out. Using biomass materials this year has taught me that many of nature's merits are hidden as supposedly "meaningless" articles of "garbage". I continue to ask myself why biowaste materials aren't as prevalent as they can be in industry, and I often realize that it comes down to execution. This year, I chemically modified orange peels with coupled eggshells to create a PVC filtration device to extract lead. But what more can I do to convince the public that this approach shouldn't stay hypothetical? Perhaps I can broaden my horizons by testing on other heavy metals? Maybe I can rig my PVC filtration device onto an actual pipeline? How about I do both and record the results?! These are questions scientists systematically ask themselves to elicit creating universal solutions.

#### Awards

#### Value

Excellence Award - Intermediate - Silver Medal Sponsor: Youth Science Canada	
Western University Scholarship Silver Medallist - \$2000 Entrance Scholarship Sponsor: Western University	\$2 000
Total	\$2 000