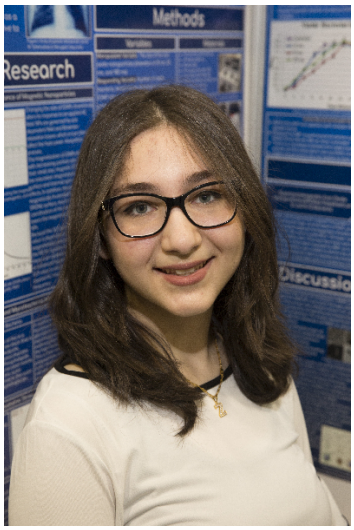
CWSF 2019 - Fredericton, New Brunswick



Zainab Hakim

Nanoparticles as a Novel Antimicrobial for Multi-Drug Resistant M. tuberculosis

Challenge: Health
Category: Intermediate
Region: Calgary Youth
City: Calgary, AB
School: Nelson Mandela High School

Abstract: Multi-drug Resistant Tuberculosis is difficult to treat due to their resistance to existing antibiotics, with a potential treatment being magnetic nanoparticles. Iron oxide nanoparticles of the sizes 10, 50, and 100 nanometers were used on bacteria to determine what size of nanoparticle is best for inducing oxidative stress and hyperthermia. Results show that the 10 nm nanoparticles caused the largest decrease in bacterial growth.

Biography

Hospitals are not always known to be a place of stories and lessons, but in my experience volunteering and interacting with patients of all walks of life, it seems to be the exact opposite. When talking to patients, you learn about the person behind the number, and all that they have gone through. Volunteering on isolation units, where patients are typically unable to have contact with the outside world, gave me the motivation to become an infectious disease specialist. During my time volunteering, I talked to many patients that were immunocompromised and were in the hospital due to an opportunistic infection. After talking with a patients mother, I came to realize the severity of antibiotic resistance, especially in regards to people that were on that unit. Therefore leading me to explore alternative antimicrobial treatments for bacterial strains that are known to be drug resistant. For other students planning to try out science fair, my advice would be to go out into the world and see the problem that you are trying to solve for yourself.