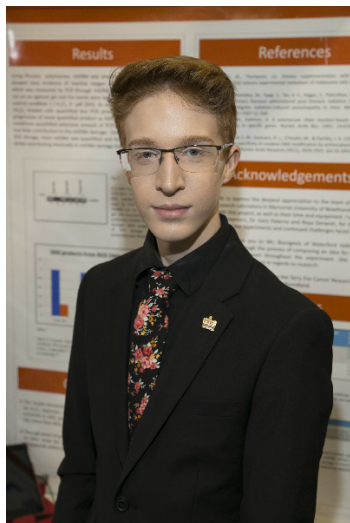


CWSF 2017 - Regina, Saskatchewan



Kurtis Collins

Flaxseed-Derived Lignan SDG Protects Human Colon Cells from ROS mtDNA Damage

Challenge: Health

Category: Senior

Region: Eastern Newfoundland

City: Mount Pearl, NL

School: Waterford Valley High School

Abstract: In previous literature, a supplementation of secoisolariciresinol diglucoside (SDG) within rats shown protection of pulmonary tissue from radiation DNA damage. The present study developed a model in-vitro assay for analyzing SDGs antioxidant properties against ROS mtDNA damage within human colonic epithelial tissue. This study proved that inoculation of SDG protected the Human CCD-18Co Cell line from ROS mtDNA damage, in a dose-dependant manner.

Biography

An honour student, photographer, tutor- Kurtis Collins wears many hats, but the achievement that's garnered his most acclaim is his recent discovery of an antioxidant that effectively protects the colon from oxidative mtDNA damage. At just 16 years old, Kurtis created a model in vitro assay for evaluating the efficacy of potential antioxidants within the colon, from which he used to discover that a flaxseed-derived extract secoisolariciresinol diglucoside (SDG) can counter oxidative stress within the colon, a major contributor to many inflammatory based diseases such as colitis and various colorectal cancers. Kurtis found the inspiration for his project while reading literature that suggested flaxseed supplementation in rats protected pulmonary tissue from radiation DNA damage. He looked into the compound responsible for the protection (SDG) and decided to create an assay for evaluating SDGs protective properties in human colon cells, as it would be more suited for a human-based scenario. Following this, Kurtis hopes on looking into a more sensitive assay for evaluating the metabolites of SDG. Kurtis's advice for students who want to participate in research competitions like the CWSF is to "Follow your interest and don't stop asking questions; such as myself, your curiosities w...

Awards

Value

Excellence Award - Senior - Bronze Medal Sponsor: Youth Science Canada	
University of Ottawa Entrance Scholarship Senior Bronze Medallist - \$1000 Entrance Scholarship Sponsor: University of Ottawa	\$1 000
Western University Scholarship Bronze Medallist - \$1000 Entrance Scholarship Sponsor: Western University	\$1 000
Total	\$2 000