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school of environmental sciences

The Research Seminar Presentation by

Nicole Legge

will be held on

Tuesday March 10th, 2020

At 2:00-2:15 pm

Alexander Hall 265

Title: Assessing the role of soil organic matter composition on the interactions between Perfluorinated carboxylic acids and edible crops using Nuclear Magnetic Resonance Spectroscopy-based metabolomics

Per and Polyfluoroalkyl substances (PFAS) are a group of anthropogenic chemicals that have been used in industry for the past 60 years. PFAS have strong carbon-fluorine bonds which cause these chemicals to be environmentally persistent, as well as chemically and thermally stable. Due to these properties, PFAS have been used to make oil repellants in food packaging, stain repellents, firefighting foams, and many others. PFAS can be found in all environmental elements such as soil, air, water, terrestrial and aquatic organisms, and humans. The main route of PFAS exposure for humans is through the consumption of crops that have been grown in contaminated soil. PFAS exposure has been known to cause weakened immunity, birth defects, chronic kidney disease, and disrupts thyroid mechanisms. PFAS can readily accumulate in the edible parts of plants which is extremely concerning since fruits and vegetables are a major part of our diet. When we consume these contaminated plant products, PFAS can accumulate in our bodies by interacting with our proteins. Additions of organic matter to crop-growing medium have been known to decrease plant uptake through electrostatic interactions between PFAS and organic matter. Therefore, my research will be focused on assessing the role of soil organic matter composition on the interactions between PFAS and edible crops. The goal of this study is to find a mixture or single organic matter type that will significantly decrease the amount of PFAS in radishes and lettuce.

Everyone is welcome to attend
(This is a Research Proposal presentation by students in ENVS*6900)