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Sustainability Seminar Series

Sustainability Seminar Series, 2017

Nov 7th, 4:00 PM - 5:00 PM

Wake Up Barren Soil! Improving Enzymatic Function of Contaminated Soils

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The MSU Sustainability Seminar Series Presents:
Wake up barren soil! Improving enzymatic function of contaminated soils

WHEN: November 7, 4:00 pm

WHERE: CELS 120 lecture hall

Dr. Nina Goodey

Chemistry and Biochemistry Department (MSU)



Dr. Nina Goodey is a Professor at the Chemistry and Biochemistry Department at Montclair State University. Dr. Goodey's lab conducts research in three areas that all fall under the umbrella of understanding the detailed structure and function of enzymes: Theme 1: Relationship between motion and catalysis in enzymes; Theme 2: Identification of dihydrofolate reductase enzymes from novel organisms; and Theme 3: Use of phylogenetics in predicting protein-drug interactions.

A legacy of industrial use in metropolitan areas has left many soils contaminated with heavy metals and organic compounds. In some impacted soils, contaminants have altered the soils' properties and ability to function. Soil microorganisms exude enzymes that break down nutrients, helping to nourish microorganisms and plants. Productive soils are often characterized by high enzymatic activities that are needed to convert decaying matter to plant nutrients. In soils where enzymatic function is low or nonexistent, plants may lack nutrients and fail to thrive. This case-study focuses on such a site within Liberty State Park in Jersey City, NJ, a brownfield that was once a railyard built on landfill from development in New York City. Our work is aimed at understanding why differently contaminated areas within the park have varying levels of enzymatic function. One application of this work is to discover processes to enhance soil biochemical function, to convert contaminated soils to productive and functional environments, and to increase enzyme function in contaminated, poorly functioning soils.

For more information contact Dr. Stefanie Brachfeld at 973-655-5129