



School of Graduate Studies and Research

Invites faculty, staff, and students to attend

Faculty Research Colloquium



Dr. MAXIME MERHEB

Assistant Professor of Biotechnology Department
School of Arts and Science

“Biofuel Exploration from Soil Microorganisms in Ras Al Khaimah Mangroves”

**3:30-4:30 PM, Tuesday, March 22, 2016
G-208, Building G, First Floor**

Abstract

Increased demands for biodiesel have necessitated looking for alternative oil resources. Single cell oil produced through heterotrophic organisms having high oil content (oleaginous) is considered a highly attractive option. It has been reported that oleaginous microorganisms such as microalgae and fungi could produce microbial lipids up to twenty percent or more of their cell mass. The second largest group amongst the marine fungi is from salt tolerant mangrove ecosystem and the importance of fungi from mangroves has been demonstrated in the energy flow of the marine web, the decomposition processes, nutrient cycling in addition to the production of several lignocellulolytic enzymes. Fungi from Indian mangroves have been reported as important cheap oil feedstock for biodiesel production especially with their battery of lignocellulolytic enzymes. In this project, we will isolate fungi from mangrove wetland of Ras Al Khaimah. The fungal cell mass of these isolates will be evaluated for their lipid quality and quantity for biodiesel production. When carbon is in excess and a key nutrient such as nitrogen or phosphorous is limiting, oleaginous fungi store high levels of lipids. These stored lipids or Single Cell Oil (SCOs) are accumulated as intracellular lipid bodies (LBs). LBs varying in size, number and shape will be characterized in this project. Potential biodiesel fungi will be assessed based on two important steps: 1- Characterization of oleaginous fungi, 2- Intracellular lipid bodies determination in oleaginous fungi.

About the Speaker

Dr. Maxime Merheb received a Master's degree in "Physiology, Molecular and Cellular Biology" from University of Poitiers, Poitiers, France and Ph.D. in Biotechnology from Ecole Normale Supérieure, Lyon, France. Prior to coming to AURAK, Dr. Merheb worked as Assistant Professor in the French National Platform for Ancient and Degraded DNA (PALGENE) and in the Institute of Functional Genomics of Lyon (IGFL), in Lyon, France. Since January 2012 Dr Merheb has joined the department of biotechnology in AURAK, he was directly involved in the development of the new biotechnology program which was later fully accredited by the CAA. Since March 2015, he was assigned as Program Coordinator in the department of Biotechnology and he is currently teaching Genetics, Applied Microbiology, Biophysics and Bioinformatics. Dr. Merheb worked on the development of novel molecular methods to identify forensic DNA in processed organic products like canned food, leathers, furs, felts, etc. In this project, Dr. Merheb was involved in transferring of technological know-how to the international company for food safety and quality control called, Silliker. In collaboration with the National Museum of Music in Paris, Dr. Merheb worked on the restoration of the last conserved copy of Grand Piano made by Sébastien Érard (1802), similar to that used by Beethoven. In this project, his mission was to identify the species origin of the leather and glue used in the piano using ancient DNA profiling techniques. Later, he worked on the development of novel biophysical methods to detect DNA without enzymatic amplification. In AURAK, Dr. Merheb is leading three research projects related to genetic profiling of mangroves' microorganisms with potential for biofuel production. Two of those projects are funded by AURAK and the third is funded by The Sheikh Saud bin Saqr Al Qasimi Foundation for Policy Research. Dr Merheb's research studies have been published in highly ranked peer-reviewed international journals such as PloS ONE, Analytical Bioanalytical Chemistry, Journal of Mitochondrial DNA, International Journal of Biotechnology, Hamdan Medical Journal, and others.