

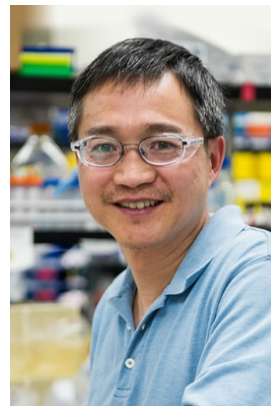


COLLEGE OF ENGINEERING

Research Seminar Series

University of Nebraska-Lincoln
Department of Chemical and Biomolecular Engineering

Ethylene-forming enzyme and bioethylene production



Dr. Jianping Yu

Scientist,

National Renewable Energy Laboratory

Hosted by Dr. Rajib Saha, Chemical and Biomolecular Engineering

Friday, February 23rd, 2018

3:30-4:30 p.m.

Jorgensen Hall, Room 110

**Refreshments provided*

Abstract

Worldwide, ethylene is the most industrially produced organic compound. It serves as a building block for a wide variety of plastics, textiles, and chemicals. Currently, commercial ethylene production involves steam cracking of fossil fuels, and is the highest CO₂-emitting process in the chemical industry. Therefore, there is great interest in developing technology for ethylene production from renewable resources including CO₂ and biomass. Ethylene is produced naturally by plants and some microbes that live with plants. One of the metabolic pathways used by microbes is via an ethylene-forming enzyme (EFE), which uses α -ketoglutarate and arginine as substrates. EFE is a promising biotechnology target because the expression of a single gene is sufficient for ethylene production in the absence of toxic intermediates. Current knowledge on EFE and its biotechnological potential will be discussed, in particular ethylene production from cyanobacteria and its interaction with photosynthesis.

Speaker Bio

Jianping Yu is a Sr. Scientist at National Renewable Energy Laboratory (NREL). Jianping has been conducting research on cyanobacteria for fundamental understanding of photosynthesis, and for the production of fuels and chemicals. He has been leading cyanobacterial bioethylene research, a winner of 2015 R&D 100 Award and Editor's Choice Award. He has recent publications on cyanobacterial metabolic engineering, central carbon metabolism pathways and regulation in Nature Plants, Metabolic Engineering, Algal Research, ACS Synthetic Biology, and other journals. Jianping received PhD degree in Plant Biology from Michigan State University.