



CALIFORNIA SECTION, ACS OCTOBER SECTION MEETING

October 27, 2015
At the USDA in Albany CA

“The Closed-Loop Production of Mango Materials' Naturally Occurring Biopolymer”
(How to transform waste into ecofriendly, affordable plastics)

Speakers: Jack Hardiman and Dr. Andrew Cal

Date: Tuesday, October 27, 2015. Reception: 5:00 – 6:00 pm, Talk: 6:00-7:00pm.

Place: USDA, 800 Buchanan St., Albany, CA 94706.

Cost: \$10 for light refreshments to be served from 5:00-6:00pm.

Reservations: Please contact the CalACS office by email office@calacs.org or 510-351-9922 by Wednesday, October 21, 2015. You may prepay by mailing your check to Cal. Section ACS at 2950 Merced St. #225, San Leandro CA 94577 or with PayPal using our email address office@calacs.org. You may also pay at the door with cash or check (credit/debit not accepted at the door).

Note – Picture ID required. Everyone attending must register in advance due to security regulations at USDA – no unregistered walk-ins on the day of the event.

Abstract:

Mango Materials, produces biodegradable plastics from waste biogas (methane) that are economically competitive with conventional petroleum-based plastics. Mango Materials uses excess methane gas from facilities such as wastewater treatment plants or landfills to produce pellets of polyhydroxyalkanoate (PHA), a valuable polymer that is converted into a variety of high margin or high volume, eco-friendly plastic products such as children’s toys, electronic casings, water bottles, and food packaging containers.

Due to a rising preference for green products from both consumers and government agencies, demand for biodegradable and non-petroleum-based plastics is growing rapidly. The competition uses either petroleum, which is low cost but produces non-biodegradable plastic, or sugars, which are expensive but produce biodegradable plastic. In contrast, Mango Materials uses affordable methane gas and a process that competes favorably with petroleum-based plastics to produce low-cost, biodegradable plastics.

Currently, Mango Materials is in the process of scaling up from small bench top reactors to a demonstration facility that will produce commercial samples of PHA. This technology gives methane producers another profitable use for their waste biogas while transforming a greenhouse gas into a valuable commodity. This presentation will discuss the concept of using methane to produce a biodegradable polymers and the effort Mango Materials’ team is putting into starting a company in the bioplastics space.

Bios:**Andrew Cal**

Andrew Cal studies the production of PHA copolymers by methanotrophic bacteria as a Postdoctoral Research Molecular Biologist at the USDA-ARS's Western Regional Research Center. He has been involved in the collaboration between Mango Materials and the USDA-ARS since September 2013. Previously, Dr. Cal was a Postdoctoral Fellow at the International Rice Research Institute in the Philippines where he studied drought physiology. Dr. Cal received his PhD in Molecular Genetics and Cell Biology from the University of Chicago, examining the genetic architecture transcriptome variation in the model plant *Arabidopsis thaliana*, and his BS in Plant Science from Cornell University.

Jack Hardiman

Jack Hardiman joined Mango Materials in July of 2013. After working for a few years optimizing the bacterial fermentation process and characterizing the biodegradable polymer, he has recently been integrated into the Marketing/Customer Development team. Before his time at Mango, he completed a B.S. in Biochemistry, Biophysics and Molecular Biology from Whitman College.