SYRACUSE UNIVERSITY

biofuels

biotechnology

energy

feedstock production

genomics

molecular farming

HEATHER COLEMAN

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Dr. Coleman is an expert in plant cell wall formation and applies her expertise to bioenergy and bioproducts. Using tools from molecular biology, biochemistry, wood chemistry and plant physiology, her lab works to further the understanding of the genetic and environmental control of wood formation in poplar trees. Her work contributes to understanding the plasticity of the cell wall structure and the control of its formation, and to reducing the recalcitrance of the plant cell wall for breakdown. This research has direct application for production of high-quality biofuels and bioproducts. In 2012, Dr. Coleman was awarded a Department of Energy Early Career Award to study the high level expression of enzymes in poplar and in 2014, she was named as a Kavli Frontiers Fellow of the National Academy of Science, a recognition for young researchers who have made significant contributions to their field.

Education:

2008 Ph.D. Tree Biotechnology, University of British Columbia

2002 B.S.F. Forestry, University of British Columbia

Recent Research Projects:

Extreme expression of enzymes in poplar. DOE Early Career Award 2012-2018

The goal of this research is to verify a transgenic technology (In Plant Activation Technology – INPACT) in poplar which allows for the controlled high level accumulation of enzymes within the plant, and to assess the impact of the resulting cellulases on the efficiency of converting cellulose to fermentable sugars.

Recent Scholarship:

Poovaiah C, Bewg WP, Lan W, Ralph J, Coleman HD. (2016) Sugarcane transgenics expressing MYB transcription factors show improved glucose release. *Biotechnology for Biofuels* 9: 1-18.

Xiao Y, Poovaiah C, Coleman HD. (2016) Expression of Glycosyl Hydrolases in Lignocellulosic Feedstock: An Alternative for Affordable Cellulosic Ethanol Production. *BioEnergy Research:* 1-15.

Kinkema M, Geijskes J, deLucca P, Palupe A, Shand K, Coleman HD, Brinin A, Williams B, Sainz M, Dale J. (2014) Improved molecular tools for sugar cane biotechnology. *Plant Molecular Biology,* 84: 497-508

Kinkema M, Harrison M, Geijskes J, Shand K, Coleman HD, Palupe A, Sainz M, Dale J. (2014) An improved chemically inducible gene switch that functions in the monocotyledonous plant sugar cane. *Plant Molecular Biology,* 84: 443-454.

Coleman HD, Canovas FM, Man H, Kirby EG, Mansfield SD. (2012) Enhanced expression of glutamine synthetase (GS1a) confers altered fiber and wood chemistry in field grown poplar (*Populus tremula* × *alba;* 717-1B4). *Plant Biotechnology Journal,* 10: 883-889.

SUADVANCE

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