

Non-food Crops for Biofuel Production



Heather Coleman
Assistant Professor, Biology

CURRENT RESEARCH

Understanding plant cell walls to produce less expensive, higher quality biofuel

Ethanol from corn, some would say, is one of the best options for replacing fossil fuel. However, corn is an edible plant, and using food for fuel comes with great cost and sacrifice. The cost effective production of bioethanol from non-food sources, like wood or agricultural waste, would allow for a large source of biomass for fuel production, and reduce our reliance on imported oil. Dr. Heather Coleman, Assistant Professor of Biology at Syracuse University, studies plant cell walls to grow dedicated energy trees in marginal lands, facilitating the production of new bioethanol resources that will help the country become more energy independent. With collaborators in Australia and a robust team of professional technicians, graduate students as well as undergraduate researchers, Dr. Coleman hopes to break the cost barriers in the production of cellulosic biofuels.

Plant cell walls are heavily structured walls that restrict or direct plant cell growth. The high levels of carbohydrates or sugars in the cell walls make them an attractive research focus from a biofuels perspective, as those sugars can be extracted and fermented to produce ethanol. As they are responsible for facilitating water transport and for protecting cells from disease, these carbohydrate-rich cell walls possess a high security system that poses a continual challenge for scientists to access. To access these carbohydrates, Dr. Coleman studies how the plant cell wall is formed, what genetic and environmental factors affect its formation, and how we can improve the plant cell wall for the production of biofuels and other bioproducts.

Current research includes:

- High Level Inducible Expression of Enzymes in Plants: Dr...

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AFFILIATION



Syracuse University

EDUCATION

- Ph.D. in Faculty of Forestry 2008, University of British Columbia

AWARDS

- Early Career Award, 2013-2018
- Australian Research Council Discovery Fellowship, 2009-2011
- Natural Sciences and Engineering Research Council of Canada Fellowship, 2009-2011
- Early Career Researcher Award, 2009

RESEARCH AREAS

Environment, Clean Energy, Remediation, Clean Energy

FUNDING REQUEST

Your contributions will support Dr. Heather Coleman at Syracuse University as she grows non-food energy crops for effective fuel production. Donations will help fund the plant tissue culture lab and provide supplies for plant growth and production, and will especially be helpful in supporting not only experienced technicians but also undergraduate students, whose training in the lab will be a valuable asset as they move towards their careers. Partner with Dr. Coleman and her team to find out the next best source for biofuel!