

Southeastern Sun Grant Center Quarterly Progress Report

Project Title: Comparative Genomics Guided Genetic Modification of Switchgrass Cell Wall for Improved Lignin Characteristics and Increased Cellulose Production

Recipient Organization: University of Tennessee, Knoxville

Principal Investigator: C. Neal Stewart Jr.

Project Location: University of Tennessee, Knoxville

Reporting Period: April 1st, 2008 to June 30th, 2008

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1. Planned Activities:

Rice Transformation to obtain the mutants
Begin switchgrass transformation
Analysis of rice and switchgrass for biomass composition

2. Actual Accomplishments

We have developed several entry vectors for multiple rice and switchgrass genes including switchgrass PAL and C4H genes as well as rice PAL and F5H genes. Multiple real-time PCR analysis to identify important rice genes for the genetic modification
Optimize the switchgrass transformation technology
Automatic biomass composition analysis platform was set up

3. Explanation of Variance:

Comprehensive genome analysis is added to the project to increase the impact. There is no strong variance between the planned and actual accomplishment.

4. Plans for Next Quarter:

1. Finish the rice knockout constructs for PAL and F5H genes and begin transformation.
2. Finish the switchgrass PAL knock out constructs.
3. Begin the biomass analysis for switchgrass and rice samples.

Patents: Two patent disclosures filled and no patent is filled yet.

Publications / Presentations:

Presentation:

1. Stewart, CN, Jr. Bioenergy research to fuel the future. Carson-Newman College, April 3 2008
2. Joshua Yuan Genomic, Transcriptomic, Proteomic and Functional Analysis of Candidate Genes for Bioenergy Feedstock Improvement, 30th Symposium on Biotechnology for Fuels and Chemicals, New Orleans, May 2008
3. Stewart, C.N., Jr. 2008. Regulating Transgenic Plants for Academic Research. Abstract P-18. In Vitro Biology World Congress, Tucson, June 2008. In Vitro and Developmental Biology 44:S24.

No publication is available yet.