
Adding problems: GE poplar, cellulose and biofuel

The US Department of Energy's Office of Biological and Environmental Research (DOE) is funding a \$1.4 million, three-year study by Purdue faculty members to determine ways to alter lignin and test whether the genetic changes affect the quality of plants used to produce biofuels. A hybrid poplar tree is the basis for the research that is part of the DOE's goal to replace 30 percent of the fossil fuel used annually in the United States for transportation with biofuels by 2030.

The researchers want to genetically modify the hybrid poplar so that lignin will not impede the release of cellulose for degradation into fermentable sugars, which then can be converted to ethanol. Currently about 25 percent of the material in plants is the complex molecule lignin, which in its present form could be burned to supply energy for ethanol production, but cannot be transformed into the alternative fuel.

Altering lignin's composition or minimizing the amount present in a cell wall could improve access of enzymes. With easier access, the researchers expect enzymes would be able to more efficiently convert cellulose to sugars. To advance production of non-fossil fuels, the Purdue researchers are using genetic tools to modify the poplar and then study how the alterations changed the plants' cell walls. Eventually, the expectation is to create trees suitable for high-yield ethanol production.

The usual reductionist approach of GE researches sees the tree but not the wood –rather, the plantation. The “solution” proposed can be foretold: huge extensions of identical GE trees, which will have the already predictable impacts on the soil, water, biodiversity, plus the unpredictable effects of a tech-fix challenged as non-scientifically sound. Not only the underlying global crisis of the climate rooted in the unsustainable energy consumption remains unsolved, but also these kind of “solutions” will place another threat to humanity.

Article based on information from: “GM tree could be used for cellulosic ethanol”, August 24, 2006, Mongabay.com, <http://news.mongabay.com/2006/0824-purdue2.html>