**Biofuels research uncovers natural fungicide**

Lignocellulosic hydrolysates contain a number of compounds that are toxic to microbes and limit conversion of sugars to biofuels. Knowledge of the types of inhibitors formed during biomass pretreatment and/or hydrolysis and their biological targets is useful for engineering biocatalyst tolerance. Moreover, due to the chemical complexity of plant hydrolysates, novel compounds may be present with unique properties that may be exploited for additional uses. Researchers at Great Lakes Bioenergy Research Center identified a compound in corn stover hydrolysate with potent antifungal activity. The chemical, referred to as poacic acid, is a member of a class of compounds from grasses called dehydrodiferulates. Chemical genomic methods employing a bar-coded collection of *Saccharomyces cerevisiae* deletion strains predicted that the target of poacic acid is the cell wall and morphological analysis of yeast cells treated with the compound supported this observation. The researchers further demonstrated that poacic acid localized to the yeast cell wall and inhibited β-1,3-glucan synthesis *in vivo* and *in vitro*. The antimicrobial effects of poacic acid were not limited to *S. cerevisiae* but extended to other fungi of economic importance, including the soybean pathogen *Sclerotinia sclerotiorum*. Indeed, a single application of poacic acid to soybean leaves infected with *S. sclerotiorum* significantly inhibited the development of fungal lesions, suggesting potential use as an agricultural biocontrol agent. These results highlight an additional benefit of biofuels research: the discovery of valuable chemicals that may benefit society.

For additional information see the press release at GLBRC.org: <https://www.glbrc.org/news/biofuels-research-uncovers-natural-fungicide>

**Reference:** **Piotrowski JS, Okada H, Lu F, Li SC, Hinchman L, et al.** (2015) Plant-derived antifungal agent poacic acid targets β-1,3-glucan. Proceedings of the National Academy of Sciences (**112**) 12: E1490-1497.

**Contact**: Dr. N. Kent Peters, SC-23.2, (301) 903-5549