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Novel Superoxide Dismutases and Glutathione Peroxidases for Biomass Conversion

New enzymes efficiently break down plant material, offering a faster and more cost-effective approach for biomass conversion.

Alternative fuel research is important due to dependence on foreign oil and oil prices. Ethanol derived from corn is an alternative fuel that is currently utilized; however, ethanol is not a sustainable fuel source due to the high demand for corn for human consumption and animal feedstock. Ethanol production from alternative plant sources is an important aspect of alternative fuel research.

Purdue University researchers have found digestive enzymes in termites that enable utilization of nonfood biomass. The exact mechanism is not yet known; however, researchers have two hypotheses. The enzymes may target lignin, an abundant natural polymer that is difficult to convert into bioethanol and reduces overall conversion efficiency, or they may synergize the release of fermentable monosaccharides from lignocellulosic biomass.

Advantages:

-Enzymes could provide an alternative fuel source

-Enzymes utilize nonfood biomass

TRL: 1

Intellectual Property:

Provisional-Patent, 2012-11-19, United States | Provisional-Patent, 2013-11-11, United States | PCT-Patent, 2014-11-12, WO | Utility Patent, 2014-11-12, United States | NATL-Patent, 2014-11-12, Canada | NATL-Patent, 2016-05-11, United States | Utility Patent, N/A, United States

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