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Battelle Number(s):

12740

Patent(s) Issued

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Available Technologies

Hemicellulose Hydrolysis to Monosaccharides

SUMMARY

A novel method to hydrolyze biomass to produce water soluble fragments that can serve as a source of commodity chemicals and feedstock for processes to convert the fragments to higher value products and to reduce the quantity of residual insoluble bio-solids requiring further processing or disposal. Corn fiber is the model substrate for which the process has been developed. However, the process would also be effective on other food and agricultural biomass waste and byproduct streams containing cellulose and hemicellulose.

With this process, hemicellulose (xylan and arbinoxylan) and starch is broken down Into soluble constituents including simple sugars, such as xylose, while the bulk of the cellulose and protein Is unaffected. The result is an aqueous stream rich In pentose and hexose sugars and a solid stream consisting primarily of cellulose and protein.

The solid stream can be used as an upgraded livestock feed, while the aqueous stream can serve as a feedstock for further reduction of the organics to higher valued products. The monosaccharide stream from acid hydrolysis of bio-solids is similar to feedstocks for catalytic conversion to higher valued commodity chemicals.

U.S. DEPARTMENT OF ENERGY

Patents & Intellectual Property

» Patent #: 6,692,578

Technology Portfolio(s)

» Renewables

Potential Industry Applications

» Chemicals

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