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**Industrial biorefinery of lignocellulose for biopolymers of hemicelluloses and lignin in China****Run-Cang Sun**

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An environment friendly industrial bio-refinery of the lignocelluloses such as corn cob and other cereal straws into biopolymers of cellulose, hemicelluloses and lignin by a combination of hydrothermal pre-treatment and alkali post-treatment and then conversion into bioethanol and biomaterials will be reported. 30 thousand tonnes of bioethanol, 12 thousand tonnes of oligosaccharides and 10 thousand tonnes of xylitol with a purity of more than 97%, 300 hundred tonnes of arabinose with a purity of more than 98.5% and 15 thousand tonnes of lignin with a purity of more than 94% have been produced from 200 thousand corncobs per year at Shandong Longlive Bio-Technology Co., Ltd, China. The recovered lignin, which is a significant source of CO<sub>2</sub> emission if burned, was activated under alkaline conditions and then used to produce Lignin Phenol Formaldehyde (LPF) adhesives with a yield of about 10 thousand tonnes per year for partially replacing the expensive phenols (50%) in the commercial production of bio composite boards for construction. Finally, the cellulose-rich fraction, which has a large surface area and total pore volume, is enzymatically hydrolyzed and then fermented into bioethanol with high conversion, in which 3 tonnes of the cellulose-rich fraction can produce one tonne of bioethanol. These value-added polymeric hemicelluloses and lignin-derived products have greatly improved the economy of both lignocellulose conversion and bioethanol production. Similar biorefinery of 400 thousand tonnes of maize stem and 600 thousand tonnes of wheat straw for multi bioproducts is under construction in China today.

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