Correlation between cellulosic biomass pretreatment and enzymatic saccharification

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Liberation of fermentable sugars from cellulosic biomass is one of the key challenges in production of cellulosic ethanol. The pretreatment of lignoccellulosic is primarily employed to increase the accessible surface area of cellulose to enhance the conversion of cellulose to glucose. It is required for efficient enzymatic hydrolysis of biomass because of the chemical barriers that inhibit the accessibility of enzyme to the cellulose substrate. The pretreatment as an essential element in the bioconversion of cellulosic substrate selectively reduces the lignin content of biomass. The cellulose, hemicellulose and lignin of the selective separation are a necessary step in order for high yield production of fermentable sugars. The production of cellulosic ethanol consists of unit processes: (1) pretreatment involving the removal of lignin and disruption of the crystalline structures of cellulose, (2) saccharification for the conversion of cellulose and xylose into fermentable sugars, (3) fermentation for combining fermentable sugars into ethanol. In this research, we had performed pretreatment processes by various solutions. And, we had carried out enzymatic saccharification.