

183f Enzymatic Hydrolysis of Poplar Pretreated by Ammonia Fiber Explosion

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In light of the increasing price of oil globally, fuels from other sources have attracted much greater interest. In this respect, conversion of plant biomass to fuels is an attractive source of renewable energy. Among the various sources of biomass, Hybrid poplar (*Populus nigra x Populus maximowiczii*) is of interest due to its wide availability, high density that reduces cost of transport, and for its high glucan (45%) and xylan (18%) content. While most plant biomass requires pretreatment prior to enzymatic hydrolysis, the pretreatment of poplar presents an additional challenge due to its relatively high lignin content. We present the results of different ammonia fiber explosion (AFEX) pretreatment conditions for poplar samples followed by enzymatic hydrolysis. We will also discuss additional, inexpensive preprocessing approaches that improve the hydrolysis for pre- and post-AFEX treated samples. Further, optimal combinations of cellulase and xylanase with additives such as surfactants to achieve maximal saccharification will be discussed.