

### Conversion of sawdust to reducing sugar through carboxymethylation process

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In this study waste saw dust is converted to glucose that can be further fermented to bioethanol. Conversion of cellulose present in sawdust is hindered by the lignin that acts as a protective shield for the enzymatic attack. Carboxymethylation process is developed as a pretreatment step to disrupt the lignin wall and increase the conversion through enzymatic hydrolysis. Carboxymethylation process includes mercerization with sodium hydroxide (NaOH) and etherification by monochloroacetic acid (MCA) using ethanol as solvent. Treatment with 20 % ( w/v) NaOH and 20 % ( w/w) MCA concentration at 50°C with 60 rpm is found optimum for the formation of CMC. 0.5 as degree of substitution and 8% solubility is obtained at optimized conditions. Cellulase *Trichoderma viride* and *Aspergillus niger* are used for the formation of reducing sugars. Results confirmed *A.niger* vigorously attacks to produce more concentrated reducing sugars than *T.viride*. 0.05 g/l of enzyme concentration shows optimized results 0.05g of Carboxymethylcellulose (CMC) at 50°C, 60rpm with reaction time of 45min.