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**New insight into the effect of fungal mycelia present in the bio-pretreated paddy straw on their enzymatic saccharification and optimization of process parameters**

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**ABSTRACT**

Assessment of *Pleurotus florida* efficiency on paddy straw pretreatment and optimization of saccharification parameters were studied. *P. florida* growth was monitored by the estimation of fungal cell wall component (glucosamine). The control bio-pretreatment sample showed high glucosamine content by 397 mg/g in 28 days of incubation. But, the Inhibitor Mediated Biological (IMB) Pretreatment showed 29% lower result due to the inhibition of cellulase enzyme limits mycelial penetration rate inside the paddy straw. Fungal components present inside the pretreated straw renders nonspecific interactions with the hydrolytic enzymes during saccharification process and reducing the hydrolysis efficiency. IMB pretreated paddy straw showed maximum saccharification efficiency up to 75.3% with optimized condition (Biomass loading- 10% (w/v), Enzyme loading- 20 FPU/g and saccharification time – 72h) than control pretreatment sample. Thus, the study brings out new insight into the effect of fungal residues inside the bio-pretreated paddy straw during enzymatic saccharification to improve the efficiency.

Keywords:

Biological pretreatment; Glucosamine; Enzymatic saccharification; Biomass loading; Optimization process.

**INTRODUCTION**

Biofuel produced from lignocellulosic biomass (LCB) has the potential to replace the gasoline import in mere future due to their surplus availability and the energy value (Álvarez

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