

Effect of acid on organosolv fractionation of rice husk for effective utilization

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Organosolv fractionation was investigated for effective utilization of rice husk. The various process conditions were carried out to separate three main components (glucan, xylose and lignin) with minimal loss of each component and enhanced enzymatic digestibility of rice husk. The 170 °C – 190 °C of reaction temperature, 50% – 70% (v/v) of ethanol concentration and 0% – 0.7% (w/v) of sulfuric acid concentration were considered with reaction time and liquid to solid ratio keeping constant 60 min, 10 respectively. The fractionation conditions for the efficient separating into three main component of rice husk were determined at 180 °C, 60% (v/v) of ethanol, 0.25% (w/v) of sulfuric acid. At this fractionation conditions, 86.8% of xylan and 77.5% of lignin were removed from rice husk, and xylose and lignin were obtained from liquid in 67.6% and 49.8% yield, respectively. The glucan digestibility of fractionated rice husk was 85.2% with 15 FPU (filter paper unit) of cellulase per g-glucan enzyme loading.