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Effects of acidified aqueous glycerol and glycerol carbonate pretreatment of rice husk on the enzymatic digestibility, structural characteristics, and bioethanol production

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1 **Effects of acidified aqueous glycerol and glycerol carbonate pretreatment of rice husk**
2 **on the enzymatic digestibility, structural characteristics, and bioethanol production**

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13 **Abstract**

14 Rice husk as an abundant biomass was used in this study, and it contained 30.1%
15 glucan and 13.5% xylan, 22.4% lignin. The pretreated rice husk with glycerol carbonate
16 and acidified aqueous glycerol (10 % water) at 90 °C and 130 °C for 60 min had the
17 maximum yield of glucan digestibility which was 78.2% and 69.7% respectively, using
18 cellulase for 72h. The simultaneous saccharification and fermentation was conducted
19 anaerobically at 37 °C with *Saccharomyces cerevisiae*, 5% w/v glucan and 10 FPU/g glucan
20 of cellulase. 11.58 and 8.84 g/L was the highest ethanol concentration after 3 days of
21 incubation form pretreated rice husk with glycerol carbonate and acidified aqueous glycerol
22 respectively.

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