

### Evaluation of ammonia pretreatment of canola straw based on multi-regression models

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In our previous work, the pretreatment of canola straw using alkaline reagents was performed based on experimental design of response surface methodology. The three major factors (reaction temperature, time and catalyst concentration) of pretreatment, the CCRD in RSM was applied with five-level-three-factors. In this study, the regression model was derived by analyzing the response of experimental results such as solid recovery (SR), enzymatic digestibility (ED), and biomass into glucose recovery (BtG), and numerical optimization for acceptable all responses was performed to obtain efficient pretreatment processes. The predicted results of the SR, ED, and BtG estimated by the model equations were 74.99%, 79.75%, and 26.29%, respectively. To verify the prediction of the models, the optimal conditions were applied in the ammonia pretreatment, and the SR, ED, and BtG after the treatment were  $76.8\% \pm 1.5\%$ ,  $82.4\% \pm 1.3\%$ , and  $27.7 \pm 1.0\%$ , respectively.