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EVALUATION OF DIFFERENT PRETREATMENT PROCESSES FOR SUGAR RECOVERY FROM RICE STRAW FOR ETHANOL PRODUCTION

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ABSTRACT – In this study, the effectiveness of pretreatment using autoclave and microwave assisted dilute acid and alkali to produce maximum fermentable sugars from the rice straw was investigated. The maximum production of soluble sugars was obtained with microwave assisted alkali pretreatment (30.3%), followed by autoclave assisted acid pretreatment (27.8%). Among the rice varieties used in this investigation, Taraori basmati and Pusa basmati 1121 had higher productivity in terms of sugar recovery. The results indicate that microwave assisted alkali pretreatment is a promising approach to enhance fermentable sugar yields from rice straw for ethanol production.

Key words : Rice straw, microwave, autoclave, pretreatment, sugar