

**Bioethanol Production from Sago Waste (*Metroxylon sp*) with Pretreatment Process and Simultaneous Saccharification and Fermentation (SSF) Method****By :****Khairunnisah (0910413084)  
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Sago waste is one of biomass lignocellulose that potential to produce bioethanol. Lignocellulose material consist of three major component such as cellulose, hemicellulose and lignin. The available of lignin become inhibitor for enzymatic process it must removed by pretreatment. Research for bioethanol production from sago waste through pretreatment process by using a variation of alkaline solution; 1% NaOH, 8% NH<sub>4</sub>OH, 1% NaOH + 4% NH<sub>4</sub>OH and 1% NaOH + 8% NH<sub>4</sub>OH with a ratio solid to liquid 1:10 (w/v) after that, followed by SSF method involved two kind of fungi like *Trichoderma viride* strain T1 sk for saccharification and *Saccharomyces cerevisiae* for fermentation process. The optimum conditions for the reduction of samples obtained after pretreatment at concentration of 1% NaOH + 8% NH<sub>4</sub>OH at 49,3017% with a long incubation period of 3 days with a temperature 50°C. Result of determination cellulase enzyme activity from *Trichoderma viride* strain T1 sk by 0.1% CMC is 0,1144 unit and the highest glucose yield is 921,25 µg/mL from 0,9 grams substrate of sago waste while the optimum time for the saccharification process obtained in 75 minutes. Ethanol content was analyzed by GC/MS resulted 12.99% (% area) or equal with 0,38 mL ethanol yield for 168 hours of fermentation .

**Keywords** : Sago waste, bioethanol, alkaline pretreatment, SSF

