

SIRIPONG PREMJET : SCREENING OF CELLULASE-PRODUCING AND ETHANOL-PRODUCING MICROBES ASSOCIATED WITH AGAVE SISALANA PERRINE. THESIS
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Samples from soil in the sisal plantation, dried sisal leaves and residues were collected and screened for microorganisms that produce enzyme cellulase. Twenty six isolates of bacteria and 23 isolates of fungi were obtained. Leave juice and waste water from rope manufacturing revealed 13 bacterial isolates and 14 isolates with activities for alcoholic fermentation. The cellulase-producing microorganism are divided into two groups. The first group belongs to fungi with one important isolate identified as Botryotrichum sp. having cellulase activity of 0.74 Unit/ml. at 37°C. The second group belongs to bacteria with one sample identified as Bacillus sp. having the cellulase activity of 0.033 Unit/ml. at 37°C.

The ethanol-producing microorganisms were also divided into two groups, with one being bacteria having an isolate identified as Enterobacter sp. which produced 2.37 mg./ml. of ethanol at 37°C. The second group is yeast with one important isolate, identified as Candida sp. ,having capability to produce 80.57 mg./ml. of ethanol at 37°C. When Candida sp. and the enzyme cellulase from Botryotrichum sp. were used together in the simultaneous saccharification and fermentation (SSF) process, the ethanol yield was 5.79 mg./ml within 7 days.

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