ETHANOL PRODUCTION USING *Zymomonas mobilis* AT THIS
STERILIZED AND NON-STERIL CONDITION WHICH IS PRODUCED 
FROM SOLID WASTE FACTORY CIGARETTE KRETEK 
AS SUBSTRAT

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ABSTRACT

The aim of this research is to get fermentation pattern of glucose residue from 
solid waste of factory cigarette. This solid waste contains glucose residue 6,02% 
dried mass. The microorganism used in this research was *Zymomonas mobilis* which 
was able to transform glucose, fructose and sucrose contained in the waste solid in 
etanol through fermentation process under sterilized and nonsterilized conditions.

The fermentation processes were conducted for 50 hours and the result was 
measured every ten hours. Glucose content resulted from extraction process was 
determined using Somogyi-Nelson method, while ethanol content resulted from 
fermentation process was determined using Gas Chromatography (GC). The results 
showed that glucose content in every substrat 320 g/100 mL water extract was 9,8 g . 
Fermentation of substrat with the *Zymomonas mobilis* ATCC 10988 produced 
ethanol of 0,315 g ethanol/g glucose or 67,25% in sterilized condition and of 0,342 g 
ethanol/g glucose or 66,86% in non-sterilized condition. Fermentation of substrat 
with the *Zymomonas mobilis* A3 produced ethanol of 0,346 g ethanol/g glucose or 
67,84 % in sterilized condotion and of 0,345 g ethanol/g glucose or 67,64% in non-
sterilized condition.

Key word : *Zymomonas mobilis*, ethanol fermentation, solid waste factory cigarette 
kretek
“Halaman ini sengaja dikosongkan”