อภินันทนาการ



1.3A2808A

PRODUCTION OF ACETIC ACID BY CLOSTRIDIUM THERMOACETICUM USING MOLASSES AS SUBSTRATE TO REPLACE PETROLEUM USED

A Thesis Submitted to the Graduate School of Naresuan University
In Partial Fulfillment of the Requirement for the
Master of Science Degree in Renewable Energy
May 2005
Copyright 2005 by Naresuan University

This thesis entitled "Production of acetic acid by Clostridium thermoaceticum using molasses as substrate to replace petroleum used" submitted by Sorakhom Khammee in partial fulfillment of the requirements for the Master of Science Degree in Renewable Energy is hereby approved.

Splitz

(Assoc. Prof. Supak Poungbangpho, Ph.D.)

Major Adviser

W. Lakwierian

(Assoc. Prof. Wattanapong Rakwichian, Ph.D.)

Adviser

R. Woogrifairat

(Assist. Prof. Rosarin Wongvilairat, Ph.D.)

Adviser

(Assist. Prof. Pumisak Intanon, Ph.D.)

Internal Examiner

(Assist. Prof. Sirichai Thepa, D.Sc.)

Sinchai Thya

K Rupativilial

External Examiner

(Assist. Prof. Kanungnit Pupatwibul, Ph.D.)

Dean of the Graduate School

14 May 2005

ACKNOWLEDGMENTS

The author wishes to express his sincere gratitude to his supervisers, Assoc. Prof. Dr. Supak Poungbangpho, Assoc. Prof. Dr. Wattanapong Rakwichian and Assist. Prof. Dr. Rosarin Wongvilairat for their valuable advice, guidance, encouragement and recommendations throughout the duration of this thesis work.

Sincere thanks to Miss. Chonnanit Choopayak for her suggestion, to help and useful comments to this thesis.

Last but not least, the author wishes to extend gratefulness and deepest gratitude to his family member, farther, mother and brother for their love.

Sorakhom Khammee