PRODUCTION OF SOME CELLULASE ENZYMES BY CELLULOSE- DECOMPOSING FUNGI

Thesis
Submitted in partial fulfillment for the degree of
M.Sc. in Science
(Microbiology)

BY

Basant Abd El-tawab Ibrahim

Supervisors

Dr. Adel Elmahlawy
Microbiology Department
Faculty of Science
Ain Shams University

Prof. Dr. Ali M. Elshafei
Microbial Chemistry Department
Genetic Engineering and Biotechnology Division
National Research Center

Prof. Dr. Fatma Hussein Ali
Chemical Engineering and Pilot Plant Department
National Research Center

Department of Microbiology
Faculty of Science
Ain Shams University
2010

Approval Sheet

PRODUCTION OF SOME CELLUASE ENZYMES BY CELLULOSE- DECOMPOSING FUNGI

By

Basant Abd El-tawab Ibrahim

B.Sc., In Microbiology

Ain Shams University

2003

Supervisors Committee Approved

Dr. Adel Elmahlawy
Microbiology Department
Faculty of Science
Ain Shams University

Prof. Dr. Ali M. Elshafei
Microbial Chemistry
Genetic Engineering and Biotechnology Division
National research center

Prof. Dr. Fatma H. Ali
Chemical Engineering and Pilot Plant Department
National research center

Examination Committee

Date examination: / /2010 Approved Date: / /2010
University Council approved: / /2010

بسم الله الرحمن الرحيم

قالوا سبحانك لا علم لنا إلا ما علمتنا إنك أنت العليم الحكيم

صدق الله العظيم

(سورة البقرة آية ٣٢)

This dissertation has not been previously submitted for any degree at this or at any other university

Basant Abd El-tawab Ibrahim

ACKNOWLEDGEMENT

I thank ALLAH almighty for the marvelous things He has done for me, I can do nothing without Him.

Firstly, I send a Flower for the soul of **Prof. Dr. Fatma Hussein Ali**, Professor of chemical engineering, Chemical Engineering Department, National research center, for her kindness, love and suggestion the research point and caring she gave me in almost the thesis parts, I am very lucky to be one of her students.

A special gratitude for **Dr. Adel Elmahalwy**, Professor of microbiology, Department of Microbiology, Faculty of Science, Ain-Shams University, For his supervision, patience, and support in all parts of this work.

Special thanks for **Prof. Dr. Ali M. Elshafei**, Professor of microbial chemistry, Microbial Chemistry Department, Genetic Engineering and Biotechnology Research Division, National research center, for his valuable supervision and help throughout work.

All gratitude and respect for **Associate Prof. Dr. Tarek Kahil**, associate professor of microbial chemistry, Microbial Chemistry Department, Genetic Engineering and Biotechnology Research Division, National research center, for supervision, supporting and helping in writing of all thesis parts.

A Flower for **Dr. Enas M. Mostafa**, Researcher of Chemical engineering, Chemical Engineering Department, National research center, for helping in the modeling part of thesis.

My thanks to all the staff and members of the Microbial Chemistry Department and National Research Center Authority for the financial support and facilities that enabled us to accomplish this work.

My in-depth appreciation goes to my **Mother and Father** who have taught me the first of everything and stood by me all through my studies for their constant support and prayers.

CONTENTS

Page

Page

Page

Page

Page

List of tables:

reesei NRC 210 with alkaline/ oxidative rice straw as sole carbon source under conditions of Controlled pH (7-8), Stirrer-speed: 350 rpm,, Temperature: 25°C and Aeration level: 0.5 (vvm)