MICROBIOLOGICAL STUDIES ON β- GLUCOSIDASE FROM YEAST

By

MERVAT MORCY APPAS EL-GENDY

B.Sc. Agric. Microbiology, Fac. Agric.,
Ain Shams University (1992)

Thesis submitted in partial fulfilment

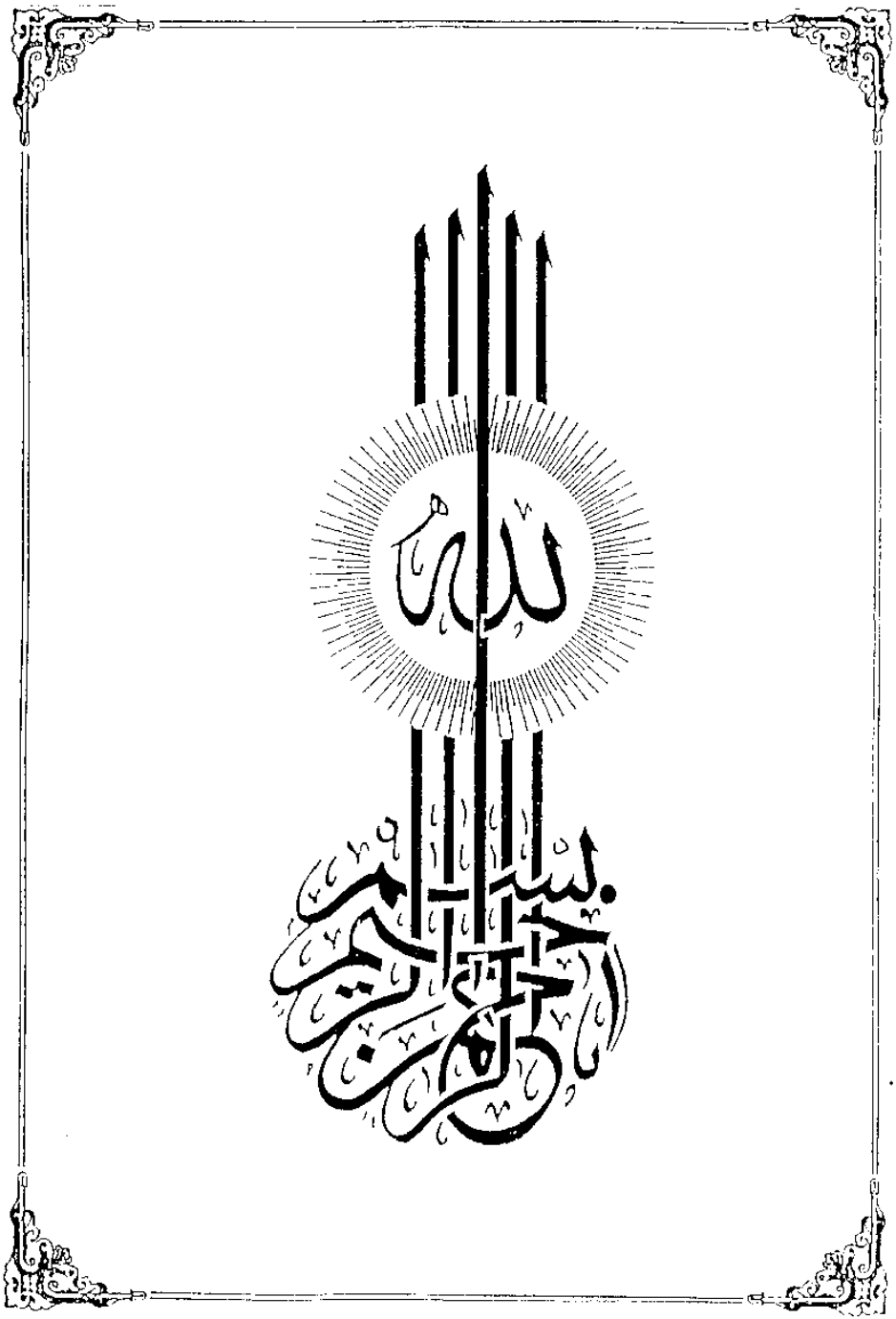
Of
the requirements for the degree of

MASTER OF SCIENCE

In
Agriculture
(Agricultural Microbiology)

Department of Agric. Microbiology
Faculty of Agriculture
Ain Shams University

1999



APPROVAL SHEET

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MERVAT MORCY APPAS EL-GENDY
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This thesis for M.Sc.degree has been approved by:

Prof. Dr.Ahmed I. El-Diwany .....
Prof. of Microbiology, National Research Center.

Prof. Dr. Abd El- Mohsen A. Refaat .....
Prof. of Agriculture Microbiology, Fac. of Agric.,
Ain Shams University.

Prof. Dr. Fatma R. R. Nassar .....
Prof. of Agriculture Microbiology, Fac. of Agric.,
Ain Shams University (supervisor).

Date of Examination / / 1999

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B.Sc. Agric. Microbiology, Fac. Agric.,
Ain Shams University (1992)

Under the Supervision of :

Prof. Dr. Fatma R. Nassar
Prof. of Agric. Microbiol., Fac. of Agric., Ain Shams University.

Prof. Dr. Mohsen H. Selim
Prof. of Microbial Chemistry, National Research Center

ABSTRACT

Mervat Morcy Appas El-Gendy. Microbiological studies on β-glucosidase from yeast. Unpubl-ished M.Sc., University of Ain Shams, Faculty of Agriculture, Department of Agricultural Microbiology, 1999.

β-glucosidase production by 150 isolates of yeasts isolated from Egyptian soils were qualitatively examined. Quantitative assay test showed that isolates No. 2, 4, 5, 10 and 53 were the most active producers. These five isolates were characterized and identified as *Kluyveromyces drosophilarum, Kluyveromyces lactis, Pichia nakazawae, Debaryomyces yarrowii* and *Hansenula anomala* respectively.

Studies on the nature of their β-glucosidase production clearly indicated that the enzyme was constitutively synthesized by these five strains. In addition, factors affecting their β-glucosidase activity were also determined.

For the most active strain (i.e.; *Kluyveromyces lactis*) which has been chosen for further studies, the growth conditions and nutritional requirements required for its maximum β-glucosidase production were determined.

In addition, chemical and physical treatments for releasing active enzyme in a good yield from yeast cells were carried out, because no activity of β-glucosidase enzyme was detected in its culture fluid.

On the other hand, the enzyme was purified by ammonium sulphate precipitation followed by gel filtration using sephadex G-100 filtration. Furthermore, some physio-chemical and biochemical properties of the purified enzyme were investigated.

Key words: Yeasts, β-glucosidase, *Kluyveromyces lactis*.

ACKNOWLEDGMENT

Praise and thanks be to ALLAH, the most merciful for assisting and directing me to the right way

The author is indebted to **Prof. Dr. E.M. Ramadan,** Prof. of Agric. Microbiology, Fac. of Agric., Ain Shams University, for his supervision, and valuable help through the work of this thesis.

The author wishes to express her thanks to **Prof. Dr. Fatma, R. Nassar,** Prof. of Agric. Microbiology, Dept. of Agric. Microbiology, Fac. of Agric., Ain Shams University, for her supervision, encouragement, helpful advice and writing through the whole work of the thesis.

In have a great pleasure to thank **Prof. Dr. Mohsen H. Selim,** Prof. of Microbial Chemistry, National Research Centre, for suggesting the point and supervising the work, his continuouis guidance, encouragement, helpful assistance and his unlimited help in writing the thesis.

Thanks also to **Dr. Moataza M. Saad,** Researcher of Microbial Chemistry, National Research Centre, for her great helps during the purification studies.

The author would like to express her great appreciation to all staff members, the colleagues and workers in the Department of Microbial Chemistry, NRC.

Thanks are also to all staff members in the Department of Agric. Microbiology, Faculty of Agriculture, Ain Shams University.

Finally my deepest gratitude for my family for their continuous help and encouragement through this work.

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