شبكة المعلومات الجامعية

بسم الله الرحمن الرحيم

شبكة المعلومات الجامعية

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

يجب أن

تحفظ هذه الأقراص المدمجة بعيدا عن الغبار

بعض الوثائق الأصلية تالفة

بالرسالة صفحات لم ترد بالأصل

PRODUCTION OF MICROBIAL ALGINATE

THESIS

Submitted to the Faculty of Science
Alexandria University

BY

WAEL AHMED SABRA
B.Sc. In Special Microbiology (1988)

FOR

The Degree of MASTER OF SCIENCE
In MICROBIOLOGY From Alexandria University

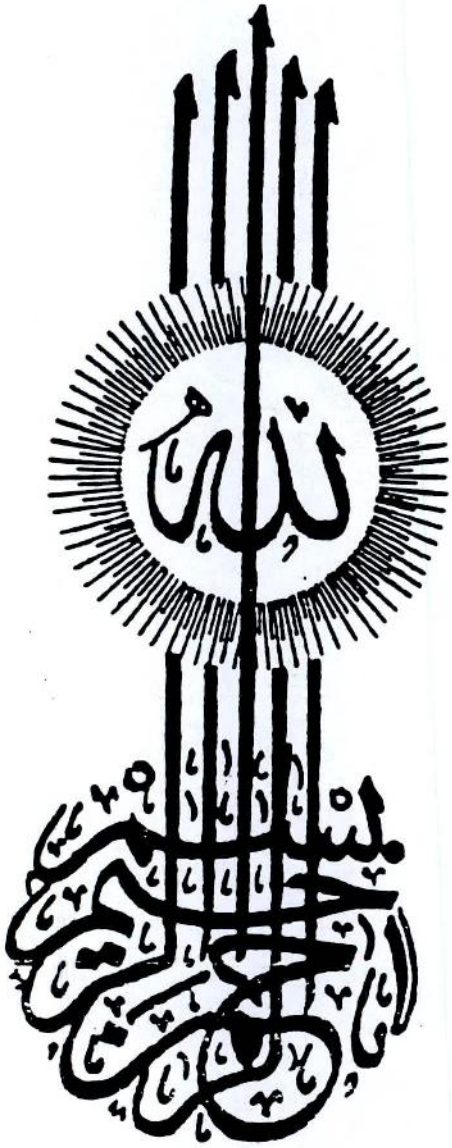
Under The Supervision of

Prof. Dr. Hasan M. Yusef
Professor of Microbiology
Botany and Microbiology Dept.
Faculty of Science-Alexandria University-Egypt

Prof. Dr. Khaled M. Ghanem
Assistant Professor of Microbiology
Botany and Microbiology Dept.
Faculty of Science
Alexandria University-Egypt

Prof. Dr. Soraya A. Sabry
Assistant Professor of Microbiology
Botany and Microbiology Dept.
Faculty of Science
Alexandria University-Egypt

Botany and Microbiology Department
Faculty of Science-Alexandria University
1993


بسم الله الرحمن الرحيم

بسم الله الرحمن الرحيم

قالوا

سبحانك

لا علم لنا إلا ما علمتنا
إنك أنت العليم الحكيم

صدق الله العظيم

CONTENTS

This thesis has not been previously submitted for a degree at this or any other university and it is the original work of the writer.

Waek Sabra

ACKNOWLEDGEMENT

I wish to express my sincere thanks and special appreciation to Prof. Dr. S.A. Sabry, who suggested the topic of this thesis and who supervised the execution of the experimental studies, and was always present with tremendous help in the preparation of the manuscript.

I also wish to express my sincere gratitude and deep appreciation to Prof. Dr. K.M. Ghanem for his valuable suggestion, precious guidance, and was always there with his valuable advice during experimental work and the revision of the manuscript.

I wish to express my profound thanks to Prof. Dr. Hassan M. Yusef for his invaluable supervision, criticism and revision of the manuscript.

I wish to thank also Dr. H.A. Ghozlan for her valuable advice and precious guidance during the experimental work and for supervision throughout the preparation and revision of this thesis.

Sincere thanks are also due to my colleagues in the microbiology laboratory for their help and encouragement.

Thanks are also due to Abd El-Hafeez Esq and Yehia Khattab Esq. for their help in the routine laboratory work.

Preface and Objectives

Exopolysaccharides, produced by a wide variety of microorganisms, are water soluble gums which have novel and unique physical properties. Because of their wide diversity in structure and physical properties microbial exopolysaccharides have found a wide range of applications in the food, pharmaceutical and other industries . Some of these applications include their use as emulsifiers, stabilizers, binders, gelling agents, coagulants, lubricants, film formers, thickening and suspending agents.

These biopolymers are rapidly emerging as a new and industrially important source of polymeric materials which are gradually becoming economically competitive with natural gums produced from marine algae and other plants.

The potential use of genetically modified microorganisms under controlled fermentation conditions may result in the production of new exopolysaccharides having novel superior properties which will open up new areas of industrial applications and thus increase their demand.

Alginate is one of the most important polysaccharides which is used widely in research as a gelling agent to immobilize a wide variety of cells. Alginate has ion-exchange properties similar to ion-exchange resins. Although most of the commercial alginate produced today is derived primarily from the sea kelp Macrocystis