Salwa Akl

# بسم اللّه الرحمن الرحيم

## مركز الشبكات وتكنولوجيا المعلومات

## قسم التوثيق الإلكتروني

Salwa Akl

# جامعة عين شمس

## التوثيق الإلكتروني والميكروفيلم

## قسم

نقسم باللّه العظيم أن المادة التي تم توثيقها وتسجيلها

علي هذه الأقراص المدمجة قد أعدت دون أية تغيرات

Salwa Akl


# بعض الوثائق الأصلية تالفة
# وبالرسالة صفحات لم ترد بالأصل

# Influence of certain heavy metals on growth and various metabolic activities of some cyanobacterial species with special reference to phytohormones production

**A Thesis**

**Submitted to Botany Department, Faculty of Science, Tanta University, as a partial fulfillment for the requirement of the degree of .**

**M. Sc. in Botany**

**{Phycology}**



Presented by

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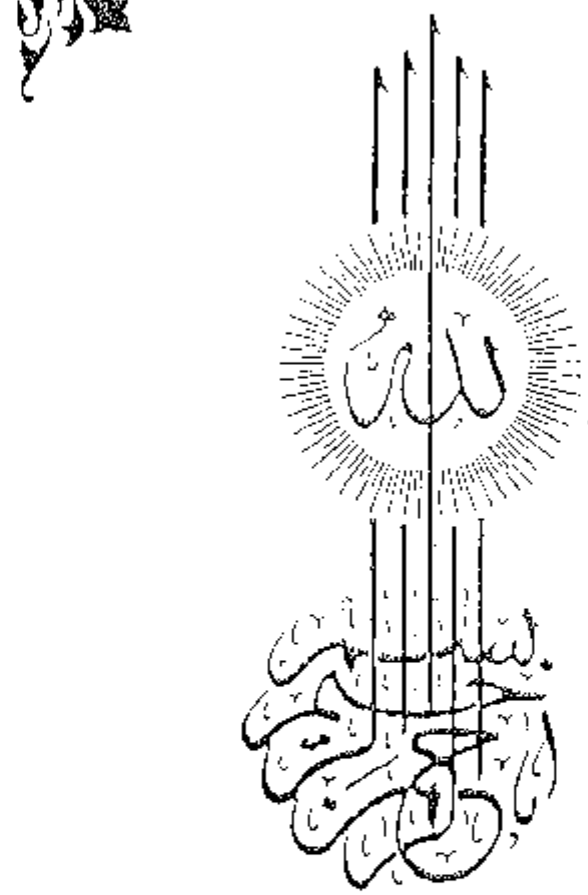

قَالُوا سُبْحَانَكَ لَا عِلْمَ لَنَا إِلَّا مَا
عَلَّمْتَنَا إِنَّكَ أَنْتَ الْعَلِيمُ الْحَكِيمُ.

صَدَقَ اللهُ الْعَظِيمُ
البقرة - ٣٢-

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In addition to this thesis Mr. Eithar Abd El Rashid Abd Rabboh has studied and successfully passed the following postgraduate courses:

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FOR MY FAMILY, SUPERVISORS AND FRIENDS

مهداه إلى عائلتى وأساتذتى وأصدقائى

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**Eithar Abd El-Rashid**

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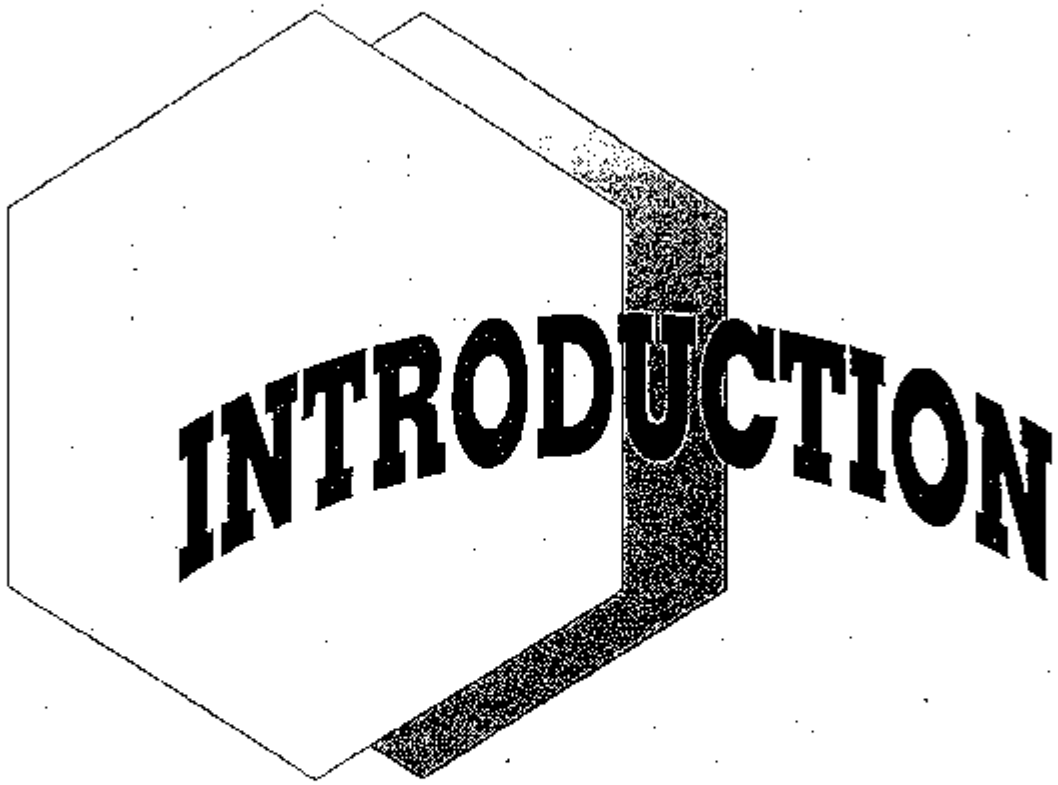
# Abbreviations

| | |
|---|---|
| Chl. a | Chlorophyll a |
| Car. | Carotenoids |
| PC | Phycocyanin |
| PE | Phycoerythrin |
| APC | Allophycocyanin |
| GA | Gibberellic acid |
| ABA | Abscisic acid |
| PSI | Photosystem I |
| PSII | Photosystem II |
| PGRs | Plant growth regulators |
| Plu. | Plumule |
| Rad. | Radical |
| μ | mean |
| P. | Probability |
| g | ion gram |


INTRODUCTION

# INTRODUCTION

Blue-green algae (cyanobacteria) are a diverse assemblage of prokaryotic photosynthetic microorganisms. The morphology and, to some extent, metabolism of the various genera varies greatly and due to an increasing awareness of the ecological importance of those algae much information on these aspects is available. (Rodgers et al., 1979).

Carr and Whitton (1973) reported that, cyanophyceae are more closely related to the prokaryotic bacteria than eucaryotic algae, while Golubic (1979) regarded that cyanophyta are related to phycology rather than bacteriology, where phycologists regard any organism with chlorophyll **a** and thallus not differentiated into roots, stem and leaves to be an alga.

Michael (1995) reported that cyanophyta have been shown to produce antiviral and antineoplastic compounds. Several of these bioactive compounds may find applications in human and verterinary medicine or agriculture and others should find applications as research tools or a structural models for the development of new drug.

Padan (1979) observed that many cyanophyceae have the ability to photosynthesize under aerobic or anaerobic conditions, under anaerobic conditions in the presence of sulfur, electrons are derived by reduction of sulfur:

$$H_2S + CO_2 \xrightarrow[\text{Light}]{\text{Chl.}} \text{Sugar} + S$$