



**Ain Shams University
Faculty of Science
Botany Department**

Mass Production of purified pigments from some algae species

By

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***B.Sc. in Science (Microbiology), 1996*
Al-Azhar University**

***M.Sc. Degree in Science (Botany), 2010*
Helwan University
Thesis**

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degree of *Ph.D.* of Philosophy of Science in Botany (Phycology)**

**Botany Department
Faculty of Science
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بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

رَبَّنَا آتِنَا مِنْ لَدُنْكَ رَحْمَةً
وَهْدًى لَنَا مِنْ أَمْرِنَا رَشَدًا

صَدَقَ اللَّهُ الْعَظِيمُ

سُورَةُ الْكَافِ

الْأَيَّةُ (١٠)

To

*My parents, My Wife
&*

*My Children
Menna, Ahmed,
Mariam & Rana*

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LIST OF ABBREVIATIONS

%	Percent
μ	Specific Growth Rate
μ_{avr.}	Specific Growth Rate on Average
μ_{max.}	Maximum Specific Growth Rate
A	Acetone
Ca	Calcium
cm	Centimeter
D	Dimethylsulfoxide
E	Ethanol
e.g./v.g.	For example (<i>L.exempli gratia</i>)
et al	and Others
etc.	(<i>L.Et Cetra</i>)
Fe	Iron (<i>L.Ferrum</i>)
g	Doubling Time
HPLC	High Performance Liquid Chromatography
hr/hrs	Hour (s)
i.e.	That Is To Say (<i>L.idem</i>)
K	Potassium (<i>L.Kalium</i>)
M	Methanol
m	Meter (s)
m³	Cubic Meter (s)
meq	Milliequivalent (s)
Mg	Magnesium
mg	Milligram (s)
mm	Millimeter (s)
mmhos	Millimhos
Mn	Manganese
N	Nitrogen
Na	Sodium (<i>L.natrium</i>)
°C	Degree Celsius
P	Phosphorus
ppm	Part Per Million
Zn	Zinc