



# **Antimicrobial and antitumor activities of some marine seaweed extracts**

**Thesis**

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Master Degree in Microbiology**

**By**

**Sohaila Ibrahim Ahmed Abotaleb**

**(B.Sc. Microbiology, 2013)**

**Supervisors**

***Prof. Adel Ahmed ELMehalawy***

*Professor of Microbiology,  
Microbiology Department,  
Faculty of science,  
Ain Shams University*

***Prof. Nanis Gamal El din Alam***

*Professor of Microbiology,  
Microbiology Department,  
Faculty of Science,  
Tanta University*

***Dr. Ali Mohamed Ali Saeed***

*Lecturer of Microbiology,  
Microbiology Department,  
Faculty of science,  
Ain Shams University*

**Microbiology Department**

**Faculty of Science**

**Ain Shams University**

**2019**

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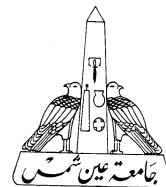
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***Sohaila Abotaleb***



**2019**



**Name: Sohaila Ibrahim Ahmed Abotaleb**

**Title: Antimicrobial and antitumor activities of some marine seaweed extracts**

### **Supervisors**

***Prof. Adel Ahmed ELMehalaw***

Professor of Microbiology, Microbiology Department,  
Faculty of science, Ain Shams University

***Prof. Nanis Gamal El din Alam***

Professor of Microbiology, Microbiology Department,  
Faculty of Science, Tanta University

***Dr. Ali Mohamed Ali Saeed***

Lecturer of Microbiology, Microbiology Department,  
Faculty of science, Ain Shams University

### **Examination committee**

***Prof. Ahmed Darwish Ahmed Al-Jamal***

Professor of Phycology, Botany Department  
Faculty of Science, Al-Azhar University- boys

***Prof. Heba Abdelmonem Elrefai***

Professor of Natural and Microbial Products  
At the National Research Center

***Prof. Adel Ahmed ELMehalaw***

Professor of Microbiology, Microbiology Department,  
Faculty of science, Ain Shams University

**Date of Discussion**

**Approval date     /     /**

**University Council approval     /     /**

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## ABBREVIATIONS

<b>ABPA</b>	Allergic Broncho pulmonary Aspergillosis
<b>CFU/ml</b>	Colony forming unit/milliter
<b>DMSO</b>	dimethyl sulfoxide
<b><i>E. coli</i></b>	<i>Escherichia coli</i>
<b>G</b>	Gram
<b>MS-GC</b>	Gas chromatography mass spectrometry
<b>GU</b>	genitourinary
<b>HIV</b>	Human immunodeficiency virus
<b>IR</b>	red spectra The infra
<b>Kb</b>	Kilo base
<b>MDR</b>	Multi drug resistant bacteria
<b>µg/ml</b>	Microgram/milliter
<b>µl</b>	Microliter
<b>MIC</b>	Minimum Inhibitory Concentration
<b>MRSA</b>	<i>Staphylococcus aureus</i> Methicilin resistant
<b>MS</b>	Mass spectra
<b>NB</b>	Nutrient broth
<b><i>P. aeruginosa</i></b>	<i>Pseudomonas aeruginosa</i>
<b>SD</b>	Standard Deviation
<b>SDA</b>	Sabouraud's dextrose agar
<b>U</b>	Unit
<b>UTI</b>	Urinary tract infection
<b>UV</b>	Ultraviolet
<b>WHO</b>	World Health Organization
<b>W/V</b>	volume / Weight



The aim of this research work is to evaluate the algal extracts as potential natural antimicrobial substances, to study the effects of such extracts as antioxidant and anticancer.

## **ABSTRACT**

The present study evaluated ethanol, methanol, ethyl acetate, hexane, chloroform and acetone extracts of five green and red seaweed species from Abu-Qir bay, Alexandria, Egypt for their antimicrobial, antioxidant activities and cytotoxicity against four cell lines. Chloroform extracts of *Ulva lactuca* and *Ulva fasciata* exhibited the highest inhibition zones against the tested pathogenic bacteria (*Klebsiella pneumoniae* and *Proteus mirabilis*) and fungi (*Aspergillus flavus*, *Aspergillus fumigatus* and *Aspergillus niger*) as measured by disc diffusion method. The extracts of *U. lactuca* and *U. fasciata* showed the highest antioxidant activity ( $IC_{50}$   $6.32 \pm 0.29$  mg/ml and  $6.61 \pm 0.27$  mg/ml, respectively), using DPPH (2, 2- diphenyl-1-picrylhydrazyl) scavenging method and total antioxidant capacity assay (2.13 and 1.51 mg ascorbic acid equivalent /gram dry weight, respectively).