

**SCREENING FOR ANTIMICROBIAL, PHYTOCHEMICAL AND
ANTIOXIDANT PROFILE OF SOME WILD FRUITS AND SEEDS IN
CANAANLAND, OTA**

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MASTER OF SCIENCE DEGREE (MSc.) IN MICROBIOLOGY**

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ACCEPTANCE

This is to attest that this dissertation is accepted in partial fulfillment of the requirements for the award of Master of Science (M.Sc.) degree in Microbiology in the Department of Biological Sciences, College of Sciences, College of Science and Technology, Covenant University, Ota, Ogun state.

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DECLARATION

I, **ABAH KINGSLEY ADEJOH** (15PCQ01223), hereby declare that this research work titled: “SCREENING FOR ANTIMICROBIAL, PHYTOCHEMICAL AND ANTIOXIDANT PROFILE OF SOME WILD FRUITS AND SEEDS IN CANAANLAND, OTA” was undertaken by me under the supervisor of Professor Solomon Oranusi. The work presented in this dissertation has not been presented, either wholly or partly for any degree elsewhere before. All sources of scholarly information used were duly acknowledged.

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CERTIFICATION

This is to certify that ABAH, KINGSLEY ADEJOH (Matric No: 15PCQ01223) carried out this research work in partial fulfilment of the requirements for the award of Master of Science (M.Sc.) degree in Microbiology of Covenant University, Ota, under the supervision of Professor Solomon Oranusi.

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DEDICATION

This review is dedicated to the Almighty God and to my parents Mr. and Mrs. Abah.

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TABLE OF CONTENTS

ACCEPTANCE.....	ii
DECLARATION	iii
CERTIFICATION.....	iv
DEDICATION	v
ACKNOWLEDGEMENTS	vi
TABLE OF CONTENTS	vii
LIST OF TABLES	x
LIST OF FIGURES.....	xi
ABSTRACT	xii
CHAPTER ONE	1
INTRODUCTION.....	1
1.1. Background of the Study.....	1
1.2. Statement of Research Problem	3
1.3. Justification of the Research	4
1.4. Research Aim	4
1.5. Research Objectives	4
CHAPTER TWO.....	5
LITERATURE REVIEW.....	5
2.1. Medicinal Plants.....	5
2.2. Phytochemicals.....	5
2.2.1. Phenolic Compounds.....	6
2.2.2. Flavonoids	6
2.2.3. Phenolic Acids.....	6
2.2.4. Terpenoids.....	6
2.3. Antioxidants	7

2.3.1. Synthetic Antioxidants	7
2.3.2. Natural Antioxidants	7
2.4. Free Radicals	8
2.5. Evaluation of Antioxidant Activity	8
2.5.1. Total Phenolic Content.....	9
2.5.2. Total Flavonoids.....	9
2.5.3. DPPH Free Radical Scavenging Assay	9
2.5.4. Reducing Power	10
2.5.5. Nitric Oxide Radical Scavenging Assay	10
2.5.6. β -Carotene-Linoleic Acid Model System	10
2.6. Antimicrobial Resistance	10
2.6.1. Antibiotics	11
2.6.2. Classification of Antibiotics.....	11
2.6.3. Mode of Action of Antibiotics	17
2.6.4. Origin of Antimicrobial Resistance.....	20
2.6.5. Antibiotic Resistant Bacterial Infections.....	21
2.7. Mechanism of Antimicrobial Resistance	21
2.7.1. Target Modification.....	21
2.7.2. Antibiotic Inactivation.....	22
2.7.3. Efflux Mechanism of Resistance.....	23
2.7.4. Plasmidic Efflux	23
2.8. Antimicrobial Sensitivity Tests	24
2.8.1. Agar Well Diffusion Method	24
2.8.2. Minimum Inhibitory Concentration (MIC) Method.....	25
CHAPTER THREE.....	26
MATERIALS AND METHODS	26
3.1. Materials.....	26
3.2. Methods.....	26
3.2.1 Collection and Processing of Plant Materials	26

3.2.2 Preparation of Extract.....	28
3.2.3. Collection and Identification of Microbial Isolates.....	28
3.2.4. Antimicrobial Sensitivity Assay.....	30
3.2.5. Determination of Minimum Inhibitory Concentration (MIC).....	31
3.2.6. Determination of Minimum Bactericidal Concentration (MBC).....	31
3.2.7. Phytochemical Screening	31
3.2.8. Determination of Antioxidant Activity	33
CHAPTER FOUR.....	36
RESULTS.....	36
4.1. Antimicrobial Susceptibility Tests	36
4.2. Minimum Inhibitory Concentration/ Minimum Bactericidal Concentration	39
4.3. Phytochemical Screening	42
4.3. Total Phenol Content/ Total Flavonoids	44
4.4. DPPH Radical Scavenging Activity.....	47
4.5. Nitric Oxide Scavenging Activity	51
4.6. Reducing Power Activity	55
4.7. Total Antioxidant Capacity	57
CHAPTER FIVE.....	59
DISCUSSION	59
CHAPTER SIX	65
CONCLUSION	65
6.1 Recommendations	65
6.2 Contribution to Knowledge	65
REFERENCES.....	67
APPENDICES.....	78

LIST OF TABLES

Table 2.1: List of Studied Plants	27
Table 4.1: <i>In vitro</i> Antibacterial Activity of Ethanol Plant Extracts.....	37
Table 4.2: <i>In vitro</i> Antibacterial Activity of Aqueous Plant Extracts	38
Table 4.3: Minimum Inhibitory Concentration of Plant Extracts	40
Table 4.4: Minimum Bactericidal Concentration of Plant Extracts	41
Table 4.5: Qualitative Phytochemical Screening of Plant Extracts	43
Table 4.6: Total Phenol Content of Plant Extracts.....	45
Table 4.7: Total Flavonoids of Plant Extracts.....	46
Table 4.8: IC ₅₀ Values of Plant Extracts for DPPH Scavenging Activity.....	50
Table 4.9: IC ₅₀ Values of Plant Extracts for NO Scavenging Activity.....	54
Table 4.10: Total Antioxidant Capacity of Plant Extracts	58
Table 4.11: DPPH (% Inhibition) Scavenging Activity	81
Table 4.12: Nitric Oxide (% Inhibition) Scavenging Activity	82
Table 4.13: Reducing Power Activity of Plant Extracts	83

LIST OF FIGURES

Figure 4.1: DPPH % Inhibition in Different Concentrations of Plant Extracts	48
Figure 4.2: Nitric Oxide % Inhibition in Different Concentrations of Plant Extracts	52
Figure 4.3: Reducing Power Activity of Plant Extracts.	56

ABSTRACT

The spread of antimicrobial resistance among pathogenic microorganisms has rendered most conventional drugs redundant. New sources of antimicrobial agents are being harnessed to develop novel drugs. Wild plants are veritable sources of bioactive compounds that may act as alternatives to antibiotics in treatment of infections caused by resistant microorganisms. Plants also possess natural antioxidants that protect the body from oxidative stress. This study was carried out to determine the antibacterial, phytochemical and antioxidant profiles of some wild plants in Canaan land, Ota, Ogun state, Nigeria. The antibacterial activity of the aqueous and ethanol extracts of twenty fruits and seeds were evaluated against *Staphylococcus aureus*, *Salmonella typhi*, *Pseudomonas aeruginosa* and *Escherichia coli*. Broad spectrum antibacterial activity was shown by extracts of six plants namely *Caryota mitis*, *Cassia javanica*, *Syzygium samarangense*, *Veitchia merrilli*, *Bauhinia tomentosa* and *Cassia fistula* with inhibition zones ranging from 20 ± 0.8 to 25 ± 0.1 mm. The minimum inhibitory concentration of the extracts to the isolates was between 7.8 to 31.2mg/ml and minimum bactericidal concentration between 15.6 and 62.5mg/ml. Flavonoids, phenolic compounds, saponins, alkaloids, terpenoids and glycosides were observed qualitatively. The antioxidant capacity of the extracts was evaluated using total antioxidant capacity and reducing power assays. Effective antioxidant activity did not vary considerably. *C. mitis* had a total antioxidant capacity of 34.89mg/100g. Free radical scavenging capacity was evaluated using 2, 2-diphenyl-1-picrylhydrazyl and nitric oxide radical scavenging assays. The highest radical scavenging activity was observed in *B. tomentosa* and *C. fistula* with IC_{50} values of 41.12 μ g/ml and 36.57 μ g/ml respectively. High phenol and flavonoid contents significantly correlated with high antioxidant capacity. The presence of antimicrobial and antioxidant properties in these wild fruits and seeds opens up a new perspective in biotherapeutic research as they could be harnessed as alternative drugs for treatment of microbial infections and management of chronic diseases.