

**Phytochemical Screening and Antimicrobial Evaluation of Leaf and Stem Extracts of
Croton zambesicus against some Human Pathogenic Bacteria**

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Certification

This is to certify that Olawale Ayoola BADIRU with matriculation number LCU/PG/001751 carried out this research work titled “Phytochemical Screening and Antimicrobial Evaluation of Leaf and Stem Extracts of *Croton zambesicus* against some Human Pathogenic Bacteria” in the Department of Biological Science, Faculty of Basic Medical and Applied Sciences, Lead City University, Ibadan, Oyo State, for the award of Master Degree (M.Sc.) in Medical Microbiology and that this has not been previously submitted.

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Date

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Dedication

This research work is dedicated to God Almighty.

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Acknowledgement

All glory be to God, for all His favour, blessing and guidance throughout the process. My sincere appreciation goes to the Management of Lead City University for granting me the privilege to undergo this program in the institution. I also appreciate all the efforts and criticisms of my Thesis supervisor, Dr. B.A. Bamkefa. She took her time to teach me the rudimentaries of microbiological techniques of this research work and also devoted her time in ensuring that this research work was successfully completed.

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Even though the above-mentioned institutions and persons have assisted in the process of this research work, I alone stand responsible for the errors if any, found in the work.

Abstract

The increase in emerging antibiotics resistance bacteria to prevailing infection and side effects of antibiotics drug's efficacy has led to emphasis on the use of plant extracts and its derivatives as a source of medicine for vast categories of human ailments. This research work specialized in phytochemical screening and the antimicrobial activities of *Croton zambesicus* evaluation. The effects of the plant extract parts were examined in-vitro using petroleum ether, ethanol, acetone, chloroform and aqueous at different concentrations on pathogenic bacteria including *E. coli*, *S. typhi*, *E. cloacae*, *P. mirabilis*, *K. pneumonia*, and *S. aureus*. The MIC effects for *E. coli* recorded 1.53mm on ethanol, 1.46mm on petroleum ether, 2.9mm on acetone. *S. typhi* was reactive to petroleum ether at 1.53mm, *E. cloacae* recorded 1.0mm on ethanol, 1.6mm on petroleum ether and 1.08mm on acetone, *P. mirabilis* measured 1.0 on petroleum ether, and 2.0 on acetone. *K. pneumonia* accounted 1.0 on ethanol, 0.51 on petroleum ether and 2.09 on acetone. The result of the standard antibiotics test discovered that *S. aureus* was inhibited by chloramphenicol (17mm), esperfloxacin (13mm), streptomycin (17mm), erythromycin (14mm), pefloxacin (16mm), gentamicin (20mm), septrin (20mm), ciprofloxacillin (19mm) and rocephin (16mm), *K. pneumonia* was inhibited by pefloxacin (15mm), rocephin (11mm), Esperfloxacin (13mm) and ciprofloxacillin (12mm). *S. typhi* was inhibited by rocephin (14mm), chloramphenicol (15mm), Esperfloxacin (12mm), ciprofloxacillin (11mm), Zinnacef (11mm), pefloxacin (19mm), septrin (17mm), erythromycin (14mm) and streptomycin (16mm). *P. mirabilis* was inhibited by esperfloxacin (16mm), rocephin (10mm), ciprofloxacillin (11mm), gentamicin (9mm), pefloxacin (17mm), erythromycin (11mm), streptomycin (14mm), and chloramphenicol (10mm). Phytochemical analysis of *C. zambesicus* revealed the presence of alkaloid, saponins, terperoid, steroid, flavoroid, glycosides, and triterpenes. The plant parts were proven to show that phytochemical derivatives contain antimicrobial properties and acetone and ethanol being an excellent solvent extractor.

Keywords: *Croton zambesicus*, Minimum inhibitory concentration, Antimicrobial activity, phytochemical screening and bacteria isolates.

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Table of Contents

Content	Page
Title Page	i
Certification	ii
Dedication	iii
Acknowledgement	iv
Abstract	v
Table of Contents	vi
List of Tables	xiv
List of Figures	xvi
List of Plates	xvii
Chapter One: Introduction	1
1.1 Background to the Study	1
1.2 Statement of the Problem	5
1.3 Justification of the Study	5
1.4 Aim and Objectives of the Study	5
1.5 Significance of the Study	6
1.6 Scope of the Study	7
1.7 Limitation to the Study	7
1.8 Operational Definition of Terms	8
Endnotes	10
Chapter Two: Literature Review	13

2.1	Scientific Classification	15
2.2	Morphology	15
2.3	Medicinal use of <i>Croton zambesicus</i>	16
2.4	Chemical Components of <i>Croton zambesicus</i>	17
2.5	Phytochemical Activities of <i>Croton Zambesicus</i>	18
2.5.1	Flavonoids	18
2.5.2	Tannins	18
2.5.3	Plant Steroids	19
2.5.3	Saponins	19
2.6	Pathogenic Bacteria and their Characteristics	20
2.6.1	<i>Escherichia coli</i>	20
2.6.1.2	Morphology	20
2.6.1.3	Virulence Factor	20
2.6.2	<i>Klebsiella pneumonia</i> Morphology	25
2.6.2.2	Subgroups of <i>Klebsiella pneumonia</i>	26
2.6.3	Morphology of <i>Proteus mirabilis</i>	28
2.6.3.2	<i>Proteus mirabilis</i> Virulence Factor	29
2.6.3.3	Enzymes	29
2.6.3.4	Toxins	29

2.6.3.5	Proteus Toxic Agglutinin (PTA)	30
2.6.3.6	Immune Evasion	30
2.6.3.7	Swarm Capacity	30
2.6.3.8	Biofilm Formation	31
2.6.3.9	Serotyping	31
2.6.4	<i>P. mirabilis</i> in Urinary Tract Infections	31
2.6.4.2	<i>Proteus mirabilis</i> in Wound Infection	32
2.6.4.3	<i>Proteus mirabilis</i> in Meningitis	32
2.6.4.4	Antimicrobial Susceptibility	32
2.6.5	<i>Salmonella typhi</i>	33
2.6.5.2	Virulent Factor	33
2.6.5.3	Typhoid	34
2.6.5.4	Transmission Mode	35
2.6.5.5	Pathogenesis	35
2.6.5.6	Multidrug Resistant <i>S. typhi</i> (MDRST)	35
2.6.6	<i>Staphylococcus aureus</i>	36
2.6.6.2	Epidemiology	36

2.6.6.3	Emergence of MRSA	37
2.6.7	<i>Enterobacter cloacae</i> Morphology and Taxonomy	38
2.6.7.2	Virulent Factor	39
2.6.7.3	Antibiotic Resistance	39
2.7	Antibiotic Review	40
2.7.1	Chloramphenicol	40
2.7.2	Nitrofurantoin	41
2.7.3	Tetracycline	41
2.7.4	Amoxicillin/Clavulanic	42
2.7.5.	Cotrimoxazole (Septrin)	42
2.7.6	Nalidixic Acid	43
2.7.7.	Ofloxacin	44
2.7.8	Streptomycin	44
2.7.9	Gentamicin	45
2.7.10	Amoxicillin	45
2.7.11	Erythromycin	46
2.7.12	Cephalexin	46

2.7.13	Ampicillin	47
2.7.14	Cefuroxime	47
	Endnotes	49
Chapter Three: Methodology		61
3.1	Equipment, Glassware, Media, Reagents, Plant parts and Other Materials Glassware	61
3.2	Collection and Processing of Plant Material	62
3.3	Collection of Test Organisms	62
3.4	Sterilization of Glassware and Non-glassware	62
3.5	Preparation of Nutrient Media	62
3.6	Validity of Test Organisms	63
3.2.4	Antimicrobial Susceptibility Tests	63
3.2.4.1	Preparation of the Extract Dilution	63
3.2.4.2	Diffusion Test in Agar Wells	65
3.2.4.3	Inhibitory Tests	66
3.2.4.4	Determination of the Minimum Inhibitory Concentration (MIC)	66
3.2.4.5	Antibiotic Susceptibility Testing	66
3.3	Phytochemical Detection of Extracts from Leaves and Stems of <i>Croton zambesicus</i>	67
3.3.1	Phytochemical Qualitative Test	67
3.3.1.1	Tannin Test	67

3.3.1.2	Phlobatannin Test	67
3.3.1.3	Saponin Test	68
3.3.1.4	Flavonoid Test	68
3.3.1.5	Steroid Test	68
3.3.1.6	Terpenoid Test (Salkowski test)	68
3.3.1.7	Cardenolides and Cardiac Glycosides Test (Keller-Kilani Test)	68
3.3.1.8	Alkanoids	69
3.3.1.9	Anthraquinone	69
3.3.1.10	Chalcones	69
3.3.1.11	Phenol	69
3.4	Quantitative Determinations	70
3.4.1	Tannin	70
3.4.2	Alkaloid Procedure	70
3.4.3	Determination of Flavonoids	71
3.4.4	Saponin	72
3.4.5	Glycosides	72
3.4.6	Steroids	73
3.4.7	Determination of Phlobatanin	73

3.4.8	Anthraquinones Determination	74
3.4.9	Terpenes	74
3.4.10	Phenol Determination	75
	Endnotes	76
	Chapter Four: Results and Discussion of Findings	78
4.1	Results	78
4.2	Discussions	81
	Endnotes	90
	Chapter Five: Conclusion	91
5.0	Summary of Findings	91
5.1	Conclusion	91
5.2	Recommendations	92
5.3	Contribution to Knowledge	93
5.4	Areas of Further Study/Research	93
	Bibliography	94
	Journals	94
	Websites	106
	Books	107
	Appendices	108
	Bio Data	123
	University Compliance Certification	125

List of Tables

Table	Title	Page
2.1	Main Characteristics of the Classic <i>E. coli</i> pathotypes: Extraintestinal (ExPEC) and Diarrheal	22
4.1	The Minimum Inhibitory Concentration (MIC) of <i>Croton zambesicus</i> of the Leaf Extract on some Harmful Microorganisms in Humans	83
4.2	<i>Croton zambesicus</i> Stem Extract's Minimum Inhibitory Concentration (MIC) Against Various Human Pathogenic Microorganisms	84
4.3	Antibiotic Susceptibility Testing Using a Standard Antibiotic Susceptibility Disk on the Isolates	85
4.4	Phytochemical Stem Screening	86
4.5	Phytochemical Screening of Leaves	87
4.6	Quantitative Phytochemical for Stem	88
4.7	Quantitative Phytochemical for the Leaf	89

List of Figure

Figure	Title	Page
2.1	<i>Croton zambesicus</i> plant	16

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List of Plates

Plate	Title	Page
1	<i>In Vitro</i> Antimicrobial Activity of the Aqueous Extract of <i>Croton zambesicus</i> Leaf on <i>Escherichiacoli</i> Showing Zones of Inhibition	108
2	An Aqueous Extract of <i>Croton zambesicus</i> Stem Demonstrated Antibacterial Action Against <i>Escherichia coli</i> in Vitro, with Zones of Inhibition.	109
3	In Vitro Antibacterial Activity of <i>Croton zambesicus</i> Stem Acetone Extract Against <i>Enterobacter cloaca</i> Revealing Zones of Inhibition	110
4	In Vitro Antimicrobial Activity of <i>Croton zambesicus</i> Leaf Acetone Extract on <i>Enterobacter cloacal</i> Showing Zones of Inhibition	111
5	In Vitro Antimicrobial Activity of Acetone Extract from <i>Croton zambesicus</i> Leaf on <i>Klebsiella pneumonia</i> Showing Zones of Inhibition	112
6	In Vitro Antimicrobial Activity of Acetone Extract from <i>Croton zambesicus</i> Leaf on <i>Klebsiella pneumonia</i> Showing Zones of Inhibition	113
7	In Vitro Antimicrobial Activity of <i>Croton zambesicus</i> Leaf Petroleum Ether Extract Against Salmonella Showing Zones of Inhibition	114
8	Disc of In Vitro Antimicrobial Activity of Antibiotics in <i>Klebsiella pneumonia</i> Showing Zones of Inhibition	115

9	Disc of In Vitro Antimicrobial Activity of Antibiotics on <i>Staphylococcus aureus</i> Showing Zones of Inhibition	116
10	Disc of In Vitro Antimicrobial Activity of Antibiotics in <i>Escherichia coli</i> Showing Zones of inhibition	117
11	In Vitro Antimicrobial Activity Disk of Antibiotics in <i>Enterobacter Cloaca</i> Showing Zones of Inhibition	118
12	Disc of In Vitro Antimicrobial Activity of Antibiotics on <i>Salmonella</i> Showing Zones of Inhibition	119
13	In Vitro Antimicrobial Activity Disk of Antibiotics in <i>P. mirabilis</i> Showing Zones of Inhibition	120
14	In Vitro Antimicrobial Activity of Gram-Negative Antibiotic Disk on <i>Enterobacter cloaca</i> Showing Zones of Inhibition	121
15	In Vitro Antimicrobial Activity of Gram-Negative Antibiotic Disk on <i>Salmonella</i> Showing Zones of inhibition	122