

**EFFECT OF ORAL ADMINISTRATION OF AQUEOUS STEM BARK
EXTRACT OF *KHAYA SENEGALENSIS* ON HEPATOTOXICITY AND
HYPERLIPIDEMIA IN RATS**

BY

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DECLARATION

I hereby declare that is work is the product of my own research efforts undertaken under the supervision of Dr. A.J. Alhassan and has not been presented and will not be presented elsewhere for the award of degree or certificate. All sources have been duly acknowledged.

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CERTIFICATION

This is to certify this dissertation and its subsequent preparation by Muhammad Ibrahim Usman with registration number SPS/12/MBC/00026 was carried out under my supervision in the Department of Biochemistry, Bayero University Kano.

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APPROVAL PAGE

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DEDICATION

This project research work is dedicated to my father Alhaji Muhammad Usman and mother Hajiya Hadiza Muhammad.

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TABLE OF CONTENT

Title pages

Declaration	ii
Certification.....	iii
Approval Page	iv
Dedication	v
Acknowledgements.....	vi
Table of content.....	vii
List of tables.....	viii
Abstract.....	viii

CHAPTER ONE: INTRODUCTION

1.2 Background.....	1
1.2 Justification.....	4
1.3 Aim of the study	5

CHAPTER TWO: LITERATURE REVIEW

2.1 Medicinal plants.....	7
2.2 <i>Khaya senegalensis</i>	9
2.2.1 Morphology.....	10
2.2.2 Climate and distribution.....	11
2.2.3 Chemical composition.....	12

2.2.4 Uses of <i>K. senegalensis</i>	13
2.2.5 Medicinal and pharmacological properties.....	14
2.3 Liver.....	18
2.3.1 Functions of the liver.....	20
2.3.2 Liver diseases.....	22
2.3.3 Liver function tests.....	27
2.4 Lipids.....	32
2.4.1 Lipid Profile.....	34
2.4.2 Fatty acids.....	34
2.4.3 Triglycerides.....	35
2.4.4 Cholesterol	36
2.4.5 Lipoproteins.....	37
2.4.6 Lipid disorders.....	41
2.4.7 Lipid and cardiovascular disease.....	43
2.4.8 Treatment targets.....	44

CHAPTER THREE: MATERIALS AND METHODS

3.1	Materials	46
3.1.1	Equipment	46
3.1.2	Chemicals and reagents.....	46
3.2	Methods.....	46
3.2.1	Collection and extraction of the plant material.....	47
3.2.2	Experimental animals.....	47
3.2.3	Preparation of cholesterol rich diet.....	47
3.3	Experimental design.....	48
3.3.1	Acute toxicity.....	48
3.3.2	Effect of aqueous stem bark extract of <i>Khaya senegalensis</i> on liver.....	48
3.3.3	Effect of aqueous stem bark extract of <i>Khaya senegalensis</i> on lipid profile in hyperlipidemic rats.....	50
3.4.1	Aspartate Aminotransferase Assay (AST)	51
3.4.2	Alanine Aminotransferase Assay (ALT)	52
3.4.3	Alkaline Phosphatase (ALP).	53
3.4.4	Determination of serum Total Protein.....	54
3.4.5	Albumin Determination (Dye Binding Method)	54
3.4.6	Determination of serum triglycerides.....	55
3.4.7	Determination of Total Cholesterol (Trinder, 1969).....	56
3.4.8	Determination of HDL and LDL-Cholesterol	57
3.5	Statistical analysis.....	59

CHAPTER FOUR: RESULT AND DISSCUSSION

4.1 Results.....	60
4.1.1 Toxicity study.....	61
4.1.2 Effect of aqueous stem bark extract of <i>Khaya senegalensis</i> on the liver.....	61
4.1.3 Anti- hyperlipidemic effect.....	69
4.2 Discussion.....	77
4.2.1 Acute toxicity.....	77
4.2.2 Effect on liver.....	78
4.2.2 Anti-hyperlipidemia effect.....	81

CHAPTER FIVE SUMMARY, CONCLUSION AND RECOMMENDATION

5.1 Summary.....	84
5.2 Conclusion.....	85
5.3 Recommendation.....	86
References.....	87
Appendices.....	101

LIST OF TABLES

Table 1a: Phase I of LD ₅₀ determination.....	60
Table 1b: Phase II of LD ₅₀ determination.....	60
Table 2: Liver enzymes (ALT, AST and ALP) of rats administered subcutaneously with 120mg/kg CCl ₄ after 7 days of treatment	62
Table 3: Total protein, albumin and bilirubin of rats administered subcutaneously with 120mg/kg CCl ₄ after 7 days of treatment	64
Table 4: Liver enzymes (ALT, AST and ALP) of rats administered subcutaneously with 120mg/kg CCl ₄ after 14 days of treatment	66
Table 5: Total protein, albumin and bilirubin of rats administered subcutaneously with 120mg/kg CCl ₄ after 14 days of treatment	68
Table 6: Effect of <i>Khaya senegalensis</i> aqueous bark extract on body weight of hypercholesterolemic rats after 7 days	70
Table 7: Effect aqueous stem bark extract of <i>Khaya senegalensis</i> on body weight of hypercholesterolemic rats after 14 days of treatment.....	72
Table 8: Effect of aqueous stem bark extract of <i>Khaya Senegalensis</i> on lipid profile (HDL-C., LDL, TC and TG) of hypercholesterolemic rats after 7 days of treatment.	74
Table 9: Effect of aqueous stem bark extract of <i>Khaya Senegalensis</i> on lipid profile (HDL-C., LDL, TC and TG) of hypercholesterolemic rats after 14 days of treatment.	76

ABSTRACT

The aim of this study is to investigate scientifically the basis for the use of aqueous stem bark extract of *K. senegalensis* (ASBEKS) for the prevention of liver damage due to CCl₄ hepatotoxicity and for the treatment of hyperlipidemia in hypercholesterolemic rats. A total of seventy two rats were used in the study of which thirty six were used for testing the hepatoprotective ability and were grouped into six groups of six rats each. Group one served as normal control. Group two served as CCl₄ induced control group, Group three was administered with only ASBEKS at a dose of 2.10g/kg body weight per day for two weeks. Group four, group five and group six were administered with the extract at a dose of 1.05g/kg, 2.10g/kg and 3.15g/kg respectively for two weeks. At the end of first week, three rats from each group were selected, rats in groups II, IV, V and VI were induced with liver damage using 120mg/kg of CCl₄. The rats were sacrificed after 48hours of CCl₄ administration to assess liver function. At the end of the second week, same was done to the remaining three rats from each group. Thirty six rats grouped into six groups were used for testing the anti-hyperlipidemic effect of ASBEKS. Group II, IV, V and VI were fed with high cholesterol rich diet to induce hypercholesterolemia. Group one served as normal control. Group two served as hyperlipidemic control group, Group three was administered only with ASBEKS at a dose of 2.10g/kg body weight per day. Group four, group five and group six were hyperlipidemic and were administered with the extract at a dose of 1.05g/kg, 2.10g/kg and 3.15g/kg respectively. At the end of one week, three rats from each group were sacrificed, at the end of the second week, the remaining three rats from each group were also sacrificed and serum was collected for analysis of serum lipid profile. A significant decrease ($p < 0.05$) was observed in serum ALT, AST and ALP of GROUP IV rats treated for one week when compared with the CCl₄ induced control, contrary to groups V and VI in the first week and groups III-VI in the second week. There was significant ($p < 0.05$) decrease in serum Total Cholesterol, LDL-Cholesterol and Triglyceride in hypercholesterolemic rats, with a concomitant increase in HDL-cholesterol at dose of 1.05 g/kg, 2.10g/kg and 3.15g/kg respectively in a dose dependent manner even after the first week. The result clearly demonstrated hepatoprotective and anti hyperlipidemic activity of *Khaya senegalensis* supporting the traditional claim.