

**INCIDENCE OF WOUND INFECTIONS IN A TEACHING HOSPITAL IN
KANO AND SUSCEPTIBILITY OF THE BACTERIA ISOLATES TO
Alchorneacordifolia(Schumach&Thonn) Müll. Arg LEAF EXTRACTS.**

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ABSTRACT

Both retrospective and prospective studies of incidences of wound infection in patients that visited Aminu Kano Teaching Hospital, Kano, Nigeria, were investigated in this study. In the retrospective study, the medical records of 651 patients diagnosed with wound infections that visited the hospital from April 2009 to September 2010 were analysed. Prospective studies involved taking swab samples from 150 patients with wound sites, culturing, isolation and identification of the infecting organisms and analysis of their susceptibilities to various antibiotics. Leaves of *Alchorneacordifolia* were extracted and subjected to phytochemical screening. Antimicrobial activities of the leaf extracts were carried out using the disk diffusion, agar dilution and rate of death/survival. Analysis of medical records of 651 patients with wound infections showed that 77.9% of the wound sites were contaminated with various organisms, notably *S. aureus*, *E. coli*, *Ps. aeruginosa* and *Klebsiella*spp in decreasing order of frequency. The most common infection site was surgical sites with amoxicillin, gentamicin and ceftriaxone being the most commonly prescribed antibiotics for the treatment of resulting infections. In the prospective study, 82% of the 150 specimens collected were infected with bacteria made up predominantly of *S. aureus*, *Ps. aeruginosa*, *Citrobacter*spp, *E. coli* and *Pr. mirabilis*. *In - vitro* antibiotic sensitivity tests showed varied sensitivity profiles of the isolated organisms to the various antibiotics. *Ps. aeruginosa* was found to be sensitive to ceftazidime, ciprofloxacin and gentamicin, and the *S. aureus* isolates sensitive mostly to gentamicin and ciprofloxacin, the *Enterobacteriaceae* isolates were generally more resistant to ceftazidime, gentamicin and ciprofloxacin. Phytochemical screening of the *Alchorneacordifolia* leaf extracts revealed the presence of carbohydrates, cardiac glycosides, saponins, tannins and flavonoids. Using the agar well diffusion methods, the Ethyl Acetate fraction exhibited the greatest inhibitory activities

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**A THESIS SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES
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**DEPARTMENT OF PHARMACEUTICS AND PHARMACEUTICAL
MICROBIOLOGY,
FACULTY OF PHARMACEUTICAL SCIENCES,
AHMADU BELLO UNIVERSITY,
ZARIA, NIGERIA**

JUNE, 2012

DECLARATION

I hereby declare that the work presented in this thesis titled “Incidence of Wound infections in a Teaching Hospital in Kano and Susceptibility of the Bacteria Isolates to *Alchorneacordifolia* (Schumach&Thonn) Müll. Arg Leaf Extracts” was performed by me in the Department of Pharmaceutics and Pharmaceutical Microbiology, under the Supervision of Dr. (Mrs.) G. O. Adeshina and Prof. Y.K.E Ibrahim. The information derived from the literature has been duly acknowledged in the text and a list of references provided. No part of this work has been presented for another degree or diploma at any Institution.

CERTIFICATION

This thesis titled “**Incidence of Wound infections in a Teaching Hospital in Kano and Susceptibility of the Bacteria Isolates to *Alchornea cordifolia* (Schumach & Thonn) Müll. Arg Leaf Extracts**” meets the regulations governing the award of the degree of Master of Science of Ahmadu Bello University, Zaria, and is approved for its scientific contribution to knowledge and literary presentation.

Dr. (Mrs.) G. O. Adeshina _____

Chairman, Supervisory Committee Signature Date

Prof. Y.K.E. Ibrahim _____

Member, Supervisory Committee Signature Date

Dr. A. B. Isah _____

Head of Department Signature Date

Prof. A.A. Joshua _____

Dean, Postgraduate School Signature Date

DEDICATION

This work is solely dedicated to Almighty Allah for providing me with health and courage throughout the period of this work.

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ABBREVIATIONS

MRSA: Methicillin Resistant *Staphylococcus aureus*

VREF: Vancomycin Resistant *Enterococcus faecalis*

ICU: Intensive Care Unit

Staphylococcus aureus: *S.aureus*

Escherichia coli: *E.coli*

Staphylococcus albus: *S. albus*

Staphylococcus epidermidis: *S. epidermidis*

Enterococcus faecalis: *E. faecalis*

AIDS: Acquired Immune Deficiency Syndrome

CDC: Center for Disease Control

WHO: World Health Organization

Proteus mirabilis: *Pr. mirabilis*

Proteus vulgaris: *Pr. vulgaris*

Klebsiella pneumonia: *K. pneumonia*

Enterobacteraerogenes: *E. aerogenes*

Enterobacter cloacae: *E.cloacae*

MARI: Multiple Antibiotic Resistance Index

EAF: Ethyl Acetate Fraction

MIC: Minimum Inhibitory Concentration

SSI: Surgical Site Infection