

**A STUDY ON THE ANTIDIARRHEIC POTENTIALS OF FERMENTED
BAMBARA NUT (*Vigna subterranea*)**

By

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**IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
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MICROBIOLOGY**

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ACCEPTANCE

This is to attest that this dissertation was accepted in partial fulfilment for the award of the degree of Master of Science in Microbiology in the Department of Biological Sciences, College of Science and Technology, Covenant University, Ota, Ogun State Nigeria.

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DECLARATION

I hereby declare that I, **UMANE OTIBHOR PHOEBE**, is the sole author of this research work and that it has not been presented by previous application for award of Masters' in Science Degree. This project is based on my original study and the views of other researchers have been duly expressed and acknowledged. I hereby authorize Covenant University to lend it to other institutions or individuals for the purpose of research work.

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Signature & Date

DEDICATION

This work is dedicated God who showed me so much favor and gave me strength to carry out this research work. I also dedicate this work to my parents and siblings who have always supported me in every way possible.

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ABSTRACT

In this study, nine isolates were obtained from a 96 h naturally fermented white Bambara nut. Comparative analysis of the proximate composition of fermented Bambara and raw samples were conducted. The parameters assessed include: protein, lipid, fibre, moisture, carbohydrate and ash contents. The predominant bacteria species that occurred during the fermentation period were isolated and purified and characterized using cultural, morphological and biochemical characterization and comparison with standard organisms. Molecular elucidations on the identity of the organisms were carried by gel electrophoresis and 16SrRNA characterization. The isolates were predominantly *Bacillus* species. Assay for the probiotic potential of the fermented Bambara was carried using selected Wistar albino rats. The rats were induced with diarrhea using clinical species 10^{11} CFU/ml *E. coli* CFU/ml. Results obtained from the proximate analysis of the fermented nut include (%) carbohydrate 46.69; lipid 10.36; fibre 3.45, protein 15., ash content 3.3, moisture content 21.2 while for the raw sample (%) carbohydrate 37.37; lipid 7.68; fibre 2.95 protein 19; ash content 3.7 and moisture content 29.3. For the probiotic assay, using the histopathology assessment the diarrheic Wistar rat internal lumen showed necrosis which recovered following feeding of the fermented Bambara nut. This study showed that fermented Bambara, an underutilized legume could provide probiotics activities on consumers of such fermented product

CHAPTER ONE