



**BUSITEMA  
UNIVERSITY**  
*Pursuing Excellence*

QUANTITATIVE PHYTOCHEMICAL ANALYSIS OF ETHANOLIC EXTRACTS OF *CARICA PAPAYA* SEEDS  
AND LEAVES

BY

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SCIENCES IN PARTIAL FULFILLMENT FOR THE AWARD OF BACHELORS DEGREE IN ANIMAL  
PRODUCTION AND MANAGEMENT OF BUSITEMA UNIVERSITY

FEBRUARY 2024.

## DECLARATION.

I hereby declare that this research is mine and I personally did it towards the award of a bachelor's degree in animal production and management. It contains work published by other individuals and also work that has been accepted in other universities towards the award of degrees and due acknowledgement has been made towards those individuals.

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## APPROVAL

This research proposal has been submitted with approval from my academic research supervisor.

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## DEDICATION.

I dedicate this proposal to my beloved parents Mr. Kachembe Isaac Chelangat and Carolyn Kachembe for the support they have rendered unto me throughout the research process.



## ACKNOWLEDGEMENT.

I would like to thank the almighty God for guarding me throughout my entire study life. He kept me strong physically, emotionally and spiritually. Moreover, he has been providing me the wisdom, knowledge and understanding.

Special thanks goes to my parents, friends and my academic supervisor who gave me a conducive environment to carry out my research successfully.



## ABSTRACT.

The study aimed at conduct a quantitative phytochemical analysis of ethanolic extracts of *Carica papaya*, with a focus on comparing the phytochemical composition of the leaves and seeds. The research employed various analytical techniques to assess the presence and concentration of phytochemicals such as phenolics, flavonoids, alkaloids, and tannins in the two plant parts. Preliminary findings suggest that the leaves have a higher phytochemical composition compared to the seeds, which indicated their potential as a valuable source of bioactive compounds. The study provided valuable insights into the phytochemical profile of *Carica papaya* and has contributed to the understanding of its medicinal and nutritional properties.



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## CHAPTER ONE

### 1.0 INTRODUCTION

#### 1.1 BACKGROUND

Infections caused by pathogenic resistant bacteria have become a major public health concern recently causing lives and economic losses to farmers and livestock (Comes *et al.*, 2021). This has been majorly attributed to the overuse and misuse of antibiotics over the past decades by farmers causing emergence of antibiotic resistant bacteria with the expectation of the highest rate being reported in developing countries (Muribeca *et al.*, 2022). The demand for new antimicrobial agents has been growing at the same time as the discovery and advancement of multi-resistant bacteria. Therefore, researchers have increasingly put much emphasis on the search for new therapeutic alternatives against multi-drug resistant bacteria. In this sense, *Carica papaya* derivatives appear as potential sources of new drugs that act in different ways to deactivate or block the growth of such pathogens (Ambarwati *et al.*, 2018). *Carica papaya* L. is the most well-known species of the family *Caricaceae*. The edible tropical plant was widely used in traditional folk medicine worldwide and is known for possessing high nutritional and medicinal values in all its parts such as fruit, leaf, seed, and latex. The phytochemical survey reported the isolation of several classes of phytochemicals including flavonoids, alkaloids, phenolic acids, fatty acids, sterols, triterpenes, saponins, (Adel *et al.*, 2021)

Alorkpa *et al.* (2016) states that Phytochemicals such as alkaloids, saponins, flavonoids, and glycosides were present in the ethanol extract. These phytoconstituents were responsible for the antimicrobial activity of the plant. This was evidenced in the antimicrobial activity against tested organisms used for the study. The zone of inhibition for the various extracts suggests the degree of efficacy of the extracts on target organisms.

*Carica papaya* plant has its medicinal and healing properties of herbs, which are closely related to their chemical constituents, which are classified into some major groups like alkaloids, terpenoids, phenols and tannins. (Singh *et al.*, 2018)

The papaya seed contains glucosinolates, tocopherols, carotenoids, and benzyl isothiocyanate. *Carica papaya* is known for numerous activities such as antioxidant, antibacterial, anticancer activity, anti-fertility agent, anti-inflammatory, antiulcer, antidiabetic, hepatoprotective, and many more due to the presence of phenolic, flavonoids, and alkaloids as the key phytochemicals.

The presence of the phytochemicals has authenticated its usefulness for therapeutic purposes and to boost immunity in livestock (Nutrition *et al.*, 2021)

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