

PHYTOCHEMICAL CONSTITUENTS ANALYSIS AND FORMULATION OF
HERBAL SYRUP FROM THUNBERGIA ALATA EXTRACTS FOR THE
MANAGEMENT OF DIARRHOEA

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REG, NO: BU/UP/2018/3461

A RESEACH PROJECT REPORT TO BE SUMITTED TO THE DEPARTMENT OF
CHEMISTRY IN PARTIAL FULLMENT OF THE REQUIREMENT FOR THE AWARD
OF BACHELORS DEGREE OF SCIENCE WITH EDUCATION AT BUSITEMA
UNIVERSITY

April, 2023

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DECLARATION

I, Mugaba Miria, declare that this research dissertation is my original work and has not been submitted anywhere for the award of a degree. Where other people's work has been used this has properly been acknowledged and cited according to the university policy.

Signature.  Date. 25.../August/2022

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APPROVAL BY THE SUPERVISOR

This research project of mugaba miria was done under my supervision and is now ready for examination.

Signed.....  Date. 14.../..06.../..2023

DR. RICHARD ORIKO OWOR

DEDICATION

This research is dedication to the almighty god and my beloved mother Malemo Jane, uncle Wambaya Robert, Mr. Eko, who have always supported me spiritually, physically and financially in pursuing this.

Besides that, I dedication this work to my siblings Mugala Agnes, Kayongo Joseph, Kado Joshua and Namujehe Faith Gift who have always been with me in all means of my academic journey.

Finally, this research is also dedicated to my colleagues in the same journey, Kwemoi Robin, Kiwuso Hassan, Nambala Oliver, Kyaligonza Wilson, Kampi Maria and Wabwire Jacob for their special time and support for the progress of my research

ACKNOWLEDGEMENT

This work would not have been possible without my lord Jesus Christ who allowed me to reach this level and financial support from Eko and my uncle Wambaya Robert. I would especially like to thank Dr. Owor Richard Oriko the supervisor, as my teacher and mentor, he has taught me more than I could ever give here. He has shown me, by his example, what a good scientist should be and for the financial support from Busitema University Research and innovation Fund (BURIF) awarded to my supervisor that funded my research in the natural products, many thanks to my classmates for their constant friendship.

With great honor I thank all lecturers in the department of chemistry for their tireless labour to see that at least I achieve my dreams.

LIST OF ABBREVIATIONS AND ACRONYMS

T. alata thunbergia alata

T.A	:	thunbergia alata
O.E	:	organic extract
mL	:	milli liter
mg	:	milligram

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ABSTRACT

The methanolic extract of *T. alata* was subjected to preliminary phytochemical screening and the photochemical tests were carried using standard method of analysis and these investigations revealed the presence of saponins, flavonoids, tannins, steroids, alkaloids, glycosides. The plant extract ingredients contain anti-inflammatory, antibacterial activity that heals diarrhea. The anti-bacterial evaluation against salmonella enterica was not conducted but the literature reveals that the formulated herbal syrup exhibits antibacterial activity. The other parameter like color, pH, density, viscosity was evaluated in the formulated herbal syrup.

KEY WORDS: formulation, evaluation, antibacterial activity, salmonella enterica

CHAPTER ONE: INTRODUCTION

1.1 **Back ground**

Diarrhea is still the third leading cause of death due to infection from microorganisms like bacteria, protozoa and virus (Fagundes-Neto 2013). Diarrhea as a disease affects rich, poor, old, young and those in developed and developing countries. This is due to an unhygienic environment, poor housing, crowding, dirt floors, and absence of clean water and poor sanitary disposal of fecal waste (Keusch, Fontaine et al. 2006). It is estimated that 10% deaths of 6.9 million people is caused by diarrheal and at least one-third of those who die of diarrhea are children under five years, most especially those living in sub-Saharan Africa and south Asia due to prevalence of diarrhea-associated risk factors and the lack of access to essential treatment (Lazarus 2015).

In Uganda, people living in rural, urban, and alongside rivers are victims of diarrhea due to unsafe drinking water, poor disposal of fecal waste, poor sanitation and hygienic conditions. However, the government has tried to provide safe drinking water by putting jar pot of chlorine at every well and bore holes and sensitizing people to promote sanitation in their homes through radio stations and with all what the government has done, there is still persistent outbreak of diarrhea as a disease in people most especially those below five years of age.

Diarrhea is caused by *salmonella enterica* bacteria invade into humans through eating seafoods, fruits, vegetable washed with contaminated water or drinking water that has been contaminated by feces, uncooked meat and eggs.

Salmonella species are gram-negative, flagellated bacilli which invade the mucosa of the small and large intestine and produces toxins as soon as they enter the human body in order to suppress its immune response (Kaper and Sperandio 2005). The bacteria invade epithelial cell that stimulates the release of proinflammatory cytokines which triggers an inflammatory reaction (Rasmussen, Eckmann et al. 1997). The acute inflammatory response causes diarrhea and may lead to ulceration and destruction of the mucosa (Sultani, Stringer et al. 2012).

Diarrhea is being managed by replacing fluid loss with orals and controlling pain, nausea and vomiting, antibiotic therapy of non-typhoidal salmonellosis is given for the septicemic enteric fever and focal infection syndromes. Antibiotic are not recommended for uncomplicated

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