

**Synergistic Antifungal Activity of the combination of Turmeric
(*Curcuma longa*) rhizome and Aloe vera Linne (*Aloe barbadensis*)
leaf Extracts on *Candida albicans***

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BU/UP/2017/1419

**RESEARCH REPORT SUBMITTED TO THE DEPARTMENT OF BIOLOGY IN
PARTIAL FULFILMENT FOR THE AWARD OF BACHELOR DEGREE IN SCIENCE
EDUCATION OF BUSITEMA UNIVERSITY**

2ND FEBRUARY 2021

DECLARATION

I declare that this report is my own unaided work. It is being submitted in partial fulfillment of the degree of Bachelor of Science Education to Busitema University. It has not been submitted before for any degree, diploma, or other qualifications to any other University or any other institution.

Sanya Vicent Mark

Signature.....

Date.....

Approval by Supervisors

This research report has been submitted for examination with the approval of the following supervisor.

Mr Richard Kifuko, PHD cand.

Signature.....

Date.....

Dedication

I dedicate this research work to my parents, Sinama Wilber and Nekesa Betty, my guardian the Late Christina Rose Tono, brothers, and sisters whose love and affection make everything I do possible. I also dedicate this research work to all those people who are interested in using herbal medicines to cure all kinds of diseases.

ACKNOWLEDGEMENTS

My most profound gratitude goes to my Supervisor, Mr. Richard Kifuko whose guidance firstly made it possible for my proposal to be accepted by the Biology Department in the Faculty of Science and Education at University of Busitema. He read my work in its most unpolished form, made sense out of it and helped me to professionally shape it to the fine state. His critical comments provided a more valid perspective on thoughts, ideas and arguments. The success of this study was made possible by his able leadership and guidance. I can surely not forget the ever-helpful Biology lecturers more especially Madam Namusana Hellen who provided the overall support and encouragement.

I would also like to extend my heartfelt appreciation to the Laboratory technicians for granting me the permission to access and use the laboratory for my research. The support from all Busitema University Lecturers, Scholars and my fellow students was so profound and very pertinent to my study. I also thank my parents and relatives who give me the support and encouragement to my studies more especially in this critical health conditions of the outbreak of coronavirus worldwide.

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LIST OF ABBREVIATIONS/ACRONYMS

SDA - Sabouraud dextrose agar

MIC - Minimum inhibitory concentration

SD- Standard deviation

ANOVA – Analysis of variance

ABSTRACT

Introduction: Turmeric rhizome and *Aloe vera* leaf extracts can be used as natural herbal plant medicines to cure Candidiasis since these two plants have antifungal property that can inhibit the growth of *Candida albicans* as the most common *Candida* species that cause Candidiasis.

Aim: The aim of this study was to investigate the Synergistic Antifungal Activity of the combination of *Curcuma longa* rhizome and *Aloe barbadensis* leaf Extracts on *Candida albicans*.

Materials and methods: The prepared ethanolic extracts from *Curcuma longa*, *Aloe vera* and the combination of the two plant extracts were investigated for antifungal activity against *Candida albicans* via in vitro study at various concentrations using the disc agar diffusion method.

Results: The combination of *Aloe vera* and *Curcuma longa* extracts only at 25 mg/ml concentration had statistically highly significant effect against the growth of *Candida albicans* with an average zone of inhibition of 9.25 ± 1.71 mm after using One-way ANOVA to find the statistically significance difference among three categorical extracts. Then Bonferroni method as one of multiple comparison tests (post hoc tests) was used to find out how the three extracts differ among themselves. With *Curcuma longa* extract and *Aloe vera* extract with mean diameters of the zone of inhibition as 6.50 ± 0.70 mm and 6.43 ± 0.58 mm respectively, there was no significant difference between antifungal effects of *Aloe vera* and *Curcuma longa* extracts against *Candida albicans* at 25 mg/ml. With the concentrations of 50 mg/ml and 100 mg/ml, there was no statistically significant difference among the three extracts when used.

Conclusion: Basing on the results obtained from this study, the combination of *Aloe vera* leaf and *Curcuma longa* rhizome extracts showed highly significant antifungal activity against the growth of *Candida albicans* at the concentration of 25 mg/ml. It was further found out to be a concentration-dependent reaction since the antifungal activity of plant extracts varied with the concentration of the extracts.

Key words: *Curcuma longa*, *Aloe barbadensis*, *Candida albicans*, Synergistic Antifungal Activity, Disc agar diffusion method.