

**ANTIBACTERIAL PROPERTIES OF *Nicotiana tabacum* EXTRACTS ON ORAL
MICROBIOME**

BY

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DECLARATION

I the under signed student do solemnly affirm that this project report is first and authentic as the outcome of my research at Busitema University Faculty of science and Education Biology and Chemistry Laboratories. It consists of activities I personally participated in and has never been published and submitted to any University or other institution for award of Bachelor's degree.

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LISTS OF ABBREVIATIONS

FME: First Methanol Extract

NAEe: Non Alkaloidal Ethyl Acetate Extract

AEe: Alkaloidal Ethyl Acetate Extract

MeOH: Methanol

M.P: Melting point

ABSTRACT

The role of medicinal plants to society in drug formulation and discovery is an overly essential aspect. It's evident that humans have used medicinal plants to cure several infections caused by pathogenic microorganisms and other disease causing agents. Medicinal plants also called medicinal herbs have been discovered and used in traditional medicine practices since prehistoric times. In ethno medical practices, it's evident that the plant *Nicotiana tabacum* has severally been used by local communities as a traditional medicinal plant against stomach complications, against pains associated with the gum inflammation, skin rashes, boils and wounds, headaches, pneumonia, destroying worms in sores and many others. However all these ethno medical practices find opposition from the findings that the use of tobacco is overly associated with developments of cancers most especially oral and chest cancers mostly being caused by Nicotine and Nornicotine. In this research therefore focused on finding out whether Phytochemicals with Antimicrobial properties depend only on known the carcinogenic compounds Nicotine and Nornicotine or other extracts without these carcinogenic compounds also have Phytochemicals with dependable antimicrobial properties. This was done by ensuring extracting of Nicotine and Nornicotine into a separate solvent.

Extraction of the Phytochemicals was done using solvent extraction yielding three different extracts whose antibacterial properties were evaluated using the disc diffusion method streptococcus and steptobacilli bacteria obtained from the human mouth swab. Different concentrations of each extract were used since stock solutions were made with concentration expressed in $\mu\text{g/ml}$ to enable analysis using graphical work, ANOVA Test and Calculation on Minimum Inhibitory Concentrations (MICs) of Each Extract.

It was found out that the Non Alkaloidal extract NAEe with the lowest MIC of $3.162\mu\text{g/ml}$ exhibited the greatest Antibacterial abilities compared to the two other extracts FMe with MIC of $3.981\mu\text{g/ml}$ and AEe with MIC of $15.85\mu\text{g/ml}$ that contained the Alkaloids- Nicotine and Nornicotine.

This hence yielded justification that besides the Alkaloids that are associated with cancers in tobacco, tobacco contains other Phytochemicals that have potential anti-bacterial properties and these may be those that the ethno medical practitioners gain from in treating diseases and other medical complications. With this therefore, Tobacco should not be under looked in the scientific such for new antibiotics, it should not only be reserved for smoking but also Bioprospection.