



**BUSITEMA
UNIVERSITY**
Pursuing Excellence

TEXTILE AND GINNING ENGINEERING DEPARTMENT.

FINAL YEAR PROJECT REPORT.

**BIOSYNTHESIS OF SILVER NANOPARTICLES USING
HOSLUNDIA OPPOSITA AQUEOUS LEAF EXTRACT.**

By

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ABSTRACT.

Nanotechnology provides an environmentally friendly green technique for synthesizing AgNPs using various parts of the plant. In this research, aqueous leaf extract of the *H.opposita* plant was used. 1mM AgNO₃ solution was used as a reducing agent. The synthesized AgNPs gave maximum peak wavelengths ranging from 400-500nm which was a confirmation of their presence. Change of color was observed within 30min of the reaction which further confirmed their presence. Characterization of the AgNPs was done using the UV VIS spectrophotometer, FTIR and the SEM. The UV VIS spectra was measured at varying extract concentrations and time, and the absorbance of the AgNPs were seen to increase with increasing extract concentration and time. The 3g concentration showed the best maximum peak and the highest absorbance. The UV VIS absorption spectra were measured while varying reaction time from 0,1,24, and 48h and the best absorbance value was seen after 48h. FTIR of the leaf extract confirmed presence of -OH, -C=C-, O=C=O groups which were responsible for stabilizing and reducing the Ag⁺ to Ag⁰. The SEM image needed a powdered sample for better analysis. Further research is encouraged on the antibacterial activity of the *H.Opposita* biosynthesized AgNPs.

DECLARATION.

I BIRUNGI EVA KALINTE, confirm that the work presented in this research project is my own, and where information was got from another source, it was indicated in the report.

Signature

Date

APPROVAL.

This report has been submitted for examination with approval from the following supervisors.

MAIN SUPERVISOR.

Ms. NAMUGA CATHERINE

Date

Signature

CO- SUPERVISOR.

Dr. NIBIKORA ILDEPHONSE.

Date

Signature

DEDICATION.

This research is dedicated to my parents, **Ms. Nabantanzi Ruth** and **Mr. Muhumuza Mathias Kalinte** who has been a strong pillar in my academic journey.

ACKNOWLEDGEMENTS.

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ABBREVIATIONS/ACRONYMS.

AgNP: silver nanoparticles

H.opposita: Hoslundia Opposita

L.E: Leaf extract.

FTIR: Fourier Transform Infrared Spectroscopy.

SEM: Scanning Electron Microscope

UV VIS: Ultraviolet Visible Spectrophotometer.

λ_{max} : maximum peak wavelength.

Ag⁰: zerovalent silver