

**EFFICACY OF *AZADIRACHTA INDICA* (NEEM TREE) LEAVES INFUSIONS ON
IXODIDAE COLLECTED IN BAITAMBOGWE SUB COUNTY, MAYUGE
DISTRICT.**

BY

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**A RESEARCH DISSERTATION SUBMITTED TO BUSITEMA UNIVERSITY IN
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ABSTRACT

Ticks are one of the most significant factors of global veterinary importance and regarded as the most important vectors of livestock parasites causing significant economic losses. The commonly available synthetic acaricides rapidly degrade after application yet have a long residual effect on the environment, are expensive and not locally readily available to local farmers.

This experimental study was motivated by the need to develop a complementary and alternative cheap but effective and safe plant-derived acaricide for use in the control of ticks and tick-borne diseases. The study was specifically aimed at determining the mortality rate of *Ixodidae* ticks when exposed to the *Azadirachta indica* leaf extract under different concentrations to identify the concentration that causes the highest mortality rate.

Trials were conducted in the Busitema University Arapai campus laboratory for a period of 72 hours in the month of October with treatments of *Azadirachta indica* leaf extract at concentrations of 20%, 10% and 5%, positive control was *cypermethrin* and a negative control was distilled water to test their acaricidal efficiency. Concentrations of the extract had significant differences in acaricidal efficacy with P value <0.0001 (alpha 0.05). 20% and 10% concentrations causing the highest tick mortality rate of 90% and 75% respectively with no significant difference (P value 0.5846) while 5% concentration of extract showed efficacy of 55% not significantly different from the positive control (*cypermethrin*) with 70% efficacy; Distilled water had no effect mortalities recorded.

Azadirachta indica leaf extract has acaricidal properties for control of *Ixodidae* and environmentally friendly thus a viable option for tick control.

DECLARATION

I, KIBIKYO JOSEPH, affirm that this dissertation is to the greatest of my knowledge my exertions. It has never been submitted to any institution of learning for the award of Graduate, Undergraduate, Diploma, or Certificate program.

Sign..... Date.....

KIBIKYO JOSEPH

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APPROVAL

The entire work relating to this research dissertation development, implementation and report writing has been done by **KIBIKYO JOSEPH** under the supervision of **Dr OMADANG LEONARD** and has met all the necessary Busitema University guidelines for research; I therefore, approve it for submission to the **Department of Animal Production and Management of Busitema University.**

Sign;

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DEDICATION

To God almighty, for the power in His word and His ability to keep me alive to see this accomplishment, He's granted me good health, cared for, and protected me through this entire period of my course. I truly believe that without God I am nothing.

To my lovely parents; you are great indeed, you taught me moral standards, commitment, positive thinking, hard work and endurance at all times; these are elements I will always employ for a throughout life.

Thank you very much the my dedicated research team for their guidance and sustenance.

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ABBREVIATIONS

%	Percentage
ANOVA	Analysis of Variance
°C	Degrees Centigrade.
CRD	Completely Randomized Design
CV	Coefficient of Variation
E.g.	For example
Etc.	And so on

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1.0 CHAPTER ONE: INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Ixodidae are vectors of animal diseases that lead to decreased livestock production especially in developing countries like Uganda where ixodidae control is not carried out effectively (Nagda et al., 2003).

The Ixodidae lead to extensive losses to the producer through spread of disease which make the livestock to reduce on the productivity of the affected animal, low fertility and also death. This has made them one of the major economically significant ecto-parasite of cattle (Graf et al., 2004).

Approximately 80% of the cattle in the world are infested with Ixodidae (Ghosh et al., 2007). This has led to an estimated annual global cost associated with Ixodidae and ixodidae-borne diseases ranging between 13.9 to 18.7 billion USD (de Castro, 1997).

In Africa, losses brought about by Ixodidae and ixodidae-borne diseases were approximated to be 7 billion USD (Dipeolu, 1989) which makes it a very big drawback to the livestock industry in Africa.

In areas of central, East and South Africa ixodidae-borne diseases are the major constraint to livestock especially cattle production especially on small holder farms of Central, East and South Africa (Nyangiwe et al., 2018).

The Equatorial climate of Uganda favors the of livestock production and eventual prevalence of the ixodidae population. Over 75% of the national cattle losses have been linked to ixodidae borne diseases of which East Coast Fever (ECF), anaplasmosis, babesiosis and cowdriosis are the most prevalent (Ocaido et al., 2005).

Due to the adverse effects of ixodidae infestation, farmers use acaricides to control the vector but with little success. According to the Social-economic and livestock disease survey of agropastoral communities (August 2005) it was established that 84.1% of the farmers control Ixodidae by use of acaricides and 87.7% of them spray the acaricides on cattle of all age groups using triazapentadiene yet there is still a persistent prevalence of ECF in the area.

The use of acaricide for tick control is expensive and inefficient because of its poor application. Consequently, ixodidae has gradually developed resistance against the acaricide.

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Appendices

PROPOSED BUDGET FOR THE RESEARCH

NO	ITEM	QUANTITY	UNIT PRICE	UNIT COST
1	LABOUR			95000
2	DMSO (<i>Dimethyl sulfoxide</i>)	10	15000	150000
3	SODIUM SULPHATE	5	25	120000
4	CYPERMETHRIN	1	72000	72000
5	DISTILLED WATER	20	12500	125000
6	FORCEPS	2	10000	20000
7	PERFORATED BOTTLES	5	1000	5000
8	TRANSPORT			50000
TOTAL				637000