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**COMPARATIVE EFFICACY OF TOBACCO LEAVES AND AMITRAZ  
AGAINST TICKS**

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**DECLARATION**

I, Nkonge Sulaiman, BU/UP/2015/235 do here by declare to the best of my knowledge and believe that the work presented within this report is my original work and has never been submitted to any university or institution of higher learning for the award of any degree or any other academic qualification. All information within the text was based on my own findings unless otherwise stated.

Signed by the said:

**NKONGE SULAIMAN**

Signature *Nkonge Sulaiman*

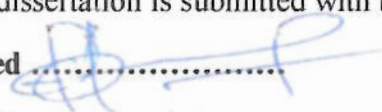
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## APPROVAL

This dissertation is submitted with the approval of my supervisor.

Signed .....

A handwritten signature in blue ink, appearing to be 'Dr. Okwany Patrick', written over a dotted line.

**Dr. Okwany Patrick**

## **DEDICATION**

I dedicate my research to my parents Hajj Mpungu Abed Kateete, my Mother Hajjat Nakabuye Lazia and my brothers and sisters for their continuous love, morale, support, perseverance and sacrifice towards my future.

**NKONGE SULAIMAN**

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May the Almighty Allah Bless them all

**NKONGE SULAIMAN**

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## **Abbreviations and Acronyms**

AIT: Adult Immersion Test

ELT: Egg Laying Test

FAO: Food and Agriculture Organization

Conc.: Concentration

Spp.: species

## ABSTRACT

The cattle tick, *Rhipicephalus appendiculatus* is one of the most important ectoparasites of cattle. Traditional tick control is mainly based on the use of synthetic chemicals; However ticks are developing resistance to most of the available acaricides and also have many negative side effects. The aim of present study was to compare the efficacy of *Nicotiana tabacum* and Amitraz against *Rhipicephalus appendiculatus* using modified Adult Immersion Test (AIT). The tobacco leaves were prepared by the crude method. The efficacy of tobacco leaves and Amitraz was tested on engorged female ticks using adult immersion test (AIT). In the adult immersion test, mortality and percent control was obtained at concentrations (%) of 20, 50 and 80 for tobacco leaves whereas Amitraz was diluted as recommend by manufacturer (2ml/l). The average number of ticks that survived after seven (7) days having been immersed in the acaricide for ten (10) minutes was 9, 7 and 4 for 20%, 50% and 80% tobacco leaves extract concentration. The mass of eggs was 1.033, 0.830 and 0.517 for 20%, 50% and 80% tobacco leaves extract respectively. The percent control was highest for tobacco leaves in 80% and 50% at 29.78% and 56.261% respectively. The Amitraz gave the highest percent control of 98.233%. In conclusion, tobacco leaves have acaricidal activity against *R. appendiculatus* but Amitraz has a higher efficacy than tobacco leaves.

## CHAPTER ONE

### INTRODUCTION

#### 1.0 Background

Ecto-parasite infestation is one of the major problems affecting livestock industries in many parts of the world. Ticks are considered as one of the important and harmful blood sucking ectoparasites of livestock and human around the world after the mosquitoes (Zahir and Rahuman, 2012). The most economically important tick species that parasitize domestic animals in Africa include *Rhipicephalus spp.*, *Boophilus spp.*, and *Amblyomma spp* (De Castro, 1997). These tick vector parasites cause fatal diseases such as theileriosis, babesiosis, anaplasmosis and cowdriosis. The cattle tick, *Rhipicephalus appendiculatus* is one of the most important ectoparasites of cattle and is widely distributed in tropical and subtropical regions including Uganda.

*Rhipicephalus appendiculatus* causes huge economic loss in cattle production by reducing weight gain, milk production and causing tick worry, blood loss, hide damage and injection of toxins. Further, indirectly they also involve in disease transmission like East Coast Fever. Keeping in view the impact of ticks and tick borne diseases on the individual and national economics the developing world should focus on tick control on a priority basis. At present the use of synthetic chemicals is the backbone to control the tick infestations.

The future of chemical tick control is under serious threat due to reports of emergence of multiple acaricide resistance (Mendes et al., 2011; Vudriko et al., 2016). Recent findings that revealed the emergence of tick resistance against ivermectin, fipronil (Castro-Janer et al., 2011; Mendes et al., 2011) and fluzuron (Reck et al., 2014) suggest that care must be taken to preserve the efficacy of the existing chemicals, lest there would be no options.

Whenever acaricides fail, there is an exponential increase in tick population leading to tick worries, increase in the incidence and costs associated with treatment of tick- borne diseases (Foil et al., 2004). Alternatively, natural bioactive phyto-acaricides are increasingly being used for tick control as they have additional advantages such as low toxicity and more eco-friendly (Fernandes and Freitas, 2007).

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