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COMPARING ACARICIDAL EFFICACY OF WATER AND ETHANOL BASED EXTRACTS OF *TEPHROSIA VOGELII* LEAVES ON *RHIPICEPHALUS APPENDICULATUS* TICKS IN MELLA SUB/COUNTY, TORORO DISTRICT

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A DISSERTATION SUBMITTED TO THE FACULTY OF AGRICULTURE AND ANIMAL SCIENCES IN PARTIAL FULFILLMENT FOR THE AWARD OF A BACHELOR IN ANIMAL PRODUCTION AND MANAGEMENTOF BUSITEMA UNIVERSITY

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DECLARATION

I ASIEPET MARY IMMACULATE do declare that this report has been done using my own efforts and knowledge with the guidance of my supervisor and has never been submitted to any institution or university for academic credit.

Date.....27th/08/2019 Signature.....

APPROVAL

This dissertation has been submitted to the Department of Animal production and Management for scripting with the approval of Dr. Etiang Patrick, my research supervisor.

Date.....27/8/2019 Signature.....

DEDICATION

I dedicate this report to my beloved Family members, staff of Busitema University, my friends and my research supervisor, Dr. Etiang Patrick who have all greatly supported me academically and mentally.

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With heartfelt gratitude, I appreciate my parents, relatives and siblings for their encouragement and financial support offered to me.

I also extend my sincere thanks to the staff of Busitema University and my research supervisor, Dr. Etiang Patrick for the academic and mental advice given to me

May the good Lord bless you all!

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LIST OF ABBREVIATIONS

TTBDs: Ticks and tick borne diseases

R.a: *Rhipicephalus appendiculatus*

T.v: *Tephrosia vogelii*

DMSO: Dimethyl sulphur oxide

ABSTRACT

Ticks are ecto-parasites and vectors of diseases with great impacts on the animal sector. Medicinal plants have been exploited to manage these ticks. In this study, the efficacy of *Tephrosia vogelii* plant extracts on *Rhipicephalus appendiculatus* ticks were assessed to determine mortality rates using the ethanol and water based extracts, with untreated ticks used as a control experiment. The infested animals were sprayed with the extracts after taking the initial tick count, 48 hours after spraying; the number of dead ticks was counted with difference from the live one for 5 days.

The ticks treated with the water based extracts of *T.v* showed a low mortality rate, while those treated with ethanol based extract showed a higher mortality rate due to complete dissolution of the active ingredients into the solvent.

Therefore, the ethanol based extract was found to be more effective in tick control and hence a viable option for use by resource constrained commercial farmers.

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1.0 CHAPTER ONE

1.1Introduction

The major health concerns affecting livestock production are ecto-parasites such as ticks and tick borne diseases. Ticks adversely affect animal health and hinder development of the livestock industry which forms the major mainstay of the economy in most rural areas(A R. Walker, et al., 2014).Ticks are responsible for severe economic losses both through the direct effects of blood sucking, skin damage, opening up wounds which make the animal susceptible to secondary infections, and cause toxicosis and paralysis ,and indirectly as vectors of pathogens and toxins (Jongejan & Uilenberg, 1994).Feeding by large numbers of ticks reduces live weight gain and results in anemia among domestic animals, while tick bites also reduce the quality of hides thus, affecting the leather industry, with 80% of the cattle population being at risk of TBDs (Ndava, Mapuwei, & Madoma, 1996).

To address tick challenges, arsenic dips for cattle have been used for about 40 years before the evolution of tick resistance to the chemicals, and the development and marketing of synthetic organic acaricides after World War II provided superior alternative products(George, Pound, & Davey, 2004).

Furthermore, acaricide failure places high financial burden on the Ugandan farmers, thus contributing to 85.6% disease control costs and 30% calf crop loss (Ocaido et al.,2009).Unless new chemical types are introduced, or highly effective alternative therapies developed, parasites are likely to cause very considerable financial problems and serious issues of welfare in the future Animal Industry due to acaricide resistance. Some of the factors that may influence development of acaricide resistance include; Inaccurate dilution i.e. use of highly concentrated acaricide solutions, Inappropriate application methods and irregular spraying intervals, Mixing 3 or more classes of acaricides thus reducing their effectiveness, Irregular use of ivermectins (Vudriko et al.,2016). These have negative effects on animal welfare; such as increased TBDs, animal poisoning and high drug burden, low livelihood and income losses due to cattle mortality, treatment costs, ineffective acaricides and psychological trauma; Environmental pollution thus affecting acquatic life, natural enemies and pollinators hence low food production (Vudriko, 2017)

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