FINAL YEAR PROJECT REPORT

PREVALENCE OF CYSTICERCOSIS DUE TO CYSTIC ECHINOCOCCOSIS AND *Taenia hydatigena* IN SMALL RUMINANTS SLAUGHTERED AT KAMPALA CITY ABATTOIR

BY

NAMAKULA SHAKIRAH

(BU/UP/2021/0139)

ACADEMIC SUPERISOR: DR. OMADANG LEONARD

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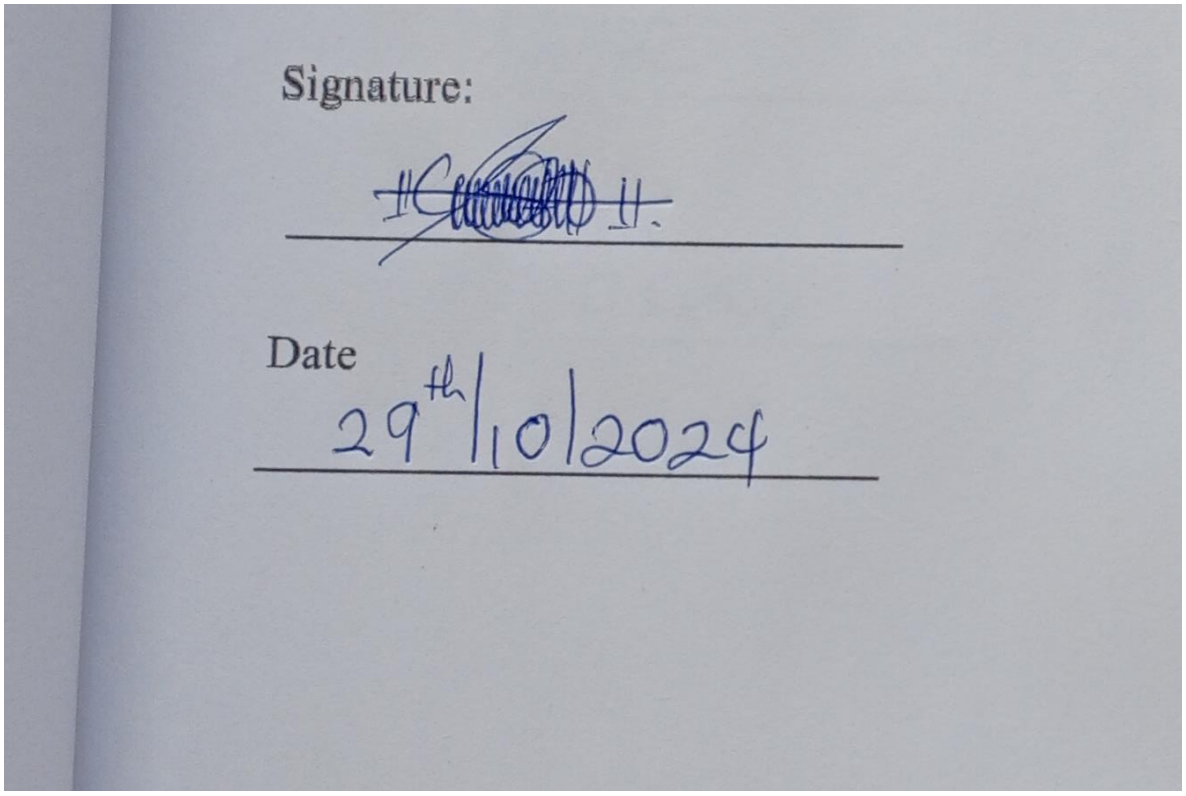
ABSTRACT

To ascertain the prevalence of Cysticercus tenuicollis (CT) and cystic echinococcosis (CE) in sheep and goats, a survey was conducted at Kampala city abattoir. The study aimed at determining the occurrence of the two infections, organs affected and economic losses attributed to condemnation of organs due to CE infection. During this study, three hundred forty three animals were examined and this included eighty goats and two hundred sixty three sheep. Of the 343 animals examined 139 (40.5%) were found to be positive with infection with 119 (34.7%) being infected with cysticercus tenuicollis and 20 (5.8%) with cystic echinococcosis. Out of 263 sheep examined, 15(5.7%) and 88(33.5%) were found to be positive with CE and CT respectively whereas out of the 80 goats examined 5 (6.3%) and 31 (38.8%) were positive for CE and CT respectively. Factors that influenced the occurrence of the infections included age, sex, body condition score and district of origin of the animals. Age and sex were not a significant occurrence factors however, body condition score and district of origin of the animals greatly affected the occurrence of the two infections i.e. sheep of body condition score 2 (poor) were found to be more infected. Cysticercus tenuicollis was found mainly in the mesentery (23.3%) while hydatid cysts were more predominant in the liver (5.0%) than any other visceral organ. The annual economic losses due to organ condemnation as a result of cystic echinococcosis infection were found to be UGX Shs106, 129 only. Thus appropriate strategies are need to be put in place to control and prevent cystic echinococcosis and cysticercus tenuicollis so as to minimize their prevalence their related production losses in the livestock industry.

DECLARATION

I, Namakula Shakirah, declare that this final year project report titled "Prevalence of cysticercosis due cystic echinococcosis and *Taenia hydatigena* in small ruminants slaughtered at Kampala city abattoir" is my original work and has not been presented to any other University or institute for examination for an academic award.



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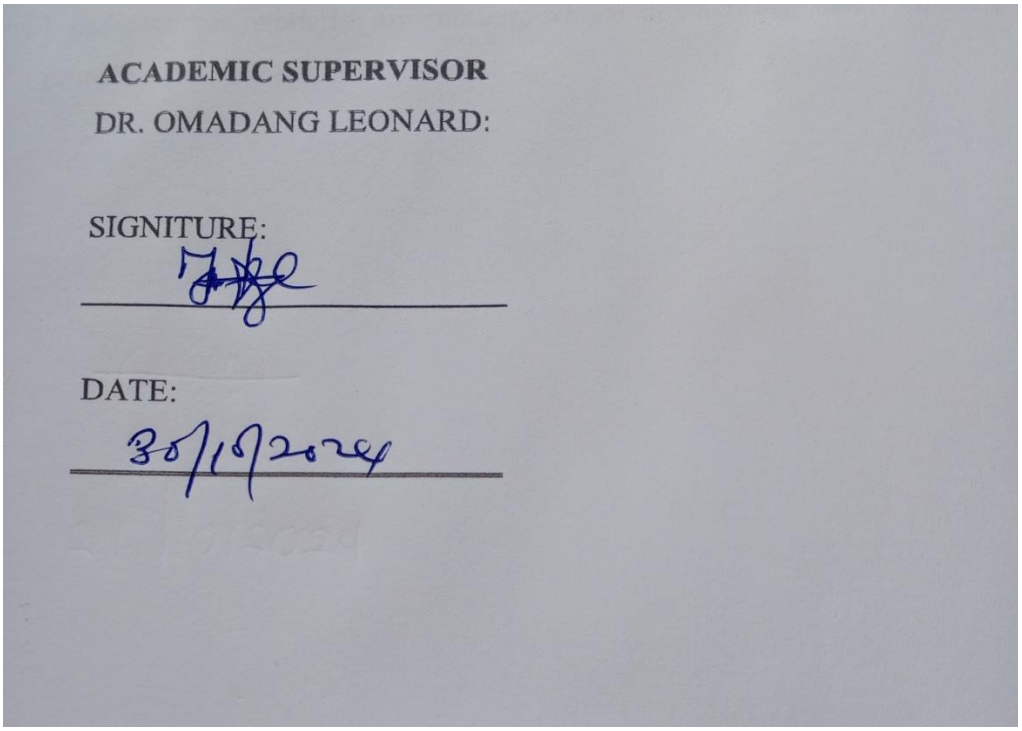
ACADEMIC SUPERVISOR
DR. OMADANG LEONARD:
SIGNITURE:
DATE:
30/10/2024

DEDICATION

I dedicate this work to my mother, whose unwavering love, support, and prayers have propelled me to reach this milestone.

ACKNOWLEGMENT

To begin with, I express my gratitude to the Most High for safeguarding me and allowing me to complete this research. I sincerely appreciate my academic supervisor, Dr. Omadang Leonard, for his invaluable guidance and patience throughout the entire project. I also extend my thanks to Dr. Kasiita Herbert, the district veterinary officer of Kampala City, and the dedicated staff at Kampala City abattoir for their assistance during the data collection process. Special recognition goes to my mother for her unwavering support and prayers.

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LIST OF ABBREVIATIONS

CE…….. Cystic echinococcosis

CT…….Cysticercus tenuicollis

UBOS…… Uganda Bureau of Statistics

CDC……...Centers for Disease Control and Prevention

THC……*Taenia hydatigena* cysticercosis

WHO……..World Health Organisation

BCS……..Body Condition Score

CHAPTER ONE

INTRODUCTION

1.1 BACKFROUND

Sheep and goats also known as small ruminants are highly valued essential assets by smallholder farmers in East Africa. These animals are perfectly suited to meet the United Nations Sustainable Development Goals encompassing food security, human wellbeing and poverty alleviation (Sargison, 2020).

Internal parasites constitute a great barrier to production of small ruminants worldwide and parasitic diseases are one of the major production obstacles in sheep and goats and in Underdeveloped Sub-Saharan African (SSA) countries, prevalence of these infections is very high and they a negative impact on public health in addition to causing significant economic losses (Shumuye *et al.*, 2021). A cording to (Asmare *et al*., 2016) the larval stage of canid cestode parasites also known as metacestodes can be blamed for the mortality, mobility and monetary losses experienced by famers keeping small ruminants.

Cysticercosis due to cystic echinococcosis (CE) and *Taenia hydatigena* are prevalent parasitic diseases among domesticate and wild animals caused by the metacestodes of the canid worms *Echinococcus granulosus* and *Taenia hydatigena* (Sgroi *et al*., 2020). Canids including domestic dogs are definitive hosts for these parasites whereas ruminants for example sheep, goats, cattle and monogastric animals such as pigs are intermediate hosts (Yasur-Landau *et al*., 2023).In contrast to hydatid cysts, Cysticercus tenuicollis is nearly uncommon in cattle and more prevalent in sheep than other livestock (Corda *et al.*, 2020). Due to the zoonotic nature of cystic echinococcosis, humans serve as accidental hosts for the tapeworm *Echinococcus granulosus* (WHO, 2021).

Both cystic echinococcosis and cysticercosis due to *Taenia hydatigena* occur throughout the globe (Abbas *et al*., 2021). The two infections are endemic in South America (Christofi, 2022; Larrieu *et al.*, 2019; Nguyen *et al*., 2016) and over the previous three decades, the global burden of cystic echinococcosis has constantly remained high most in Central Asia, Middle East as well as in North Africa (Yang *et al.*, 2024). These parasitic infections are also endemic to East Africa i.e. they have been reported in Kenya (Mulinge *et al.*, 2020) and Tanzania (Tamarozzi *et al.*, 2022).

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