SEROPREVALENCE OF BRUCELLOSIS IN RUMINANTS AND HUMAN IN AND AROUND DEBREBRIHAN, ETHIOPIA

A Thesis submitted to the College of Veterinary Medicine and Agriculture of Addis Ababa University in partial fulfillment of the requirements for the degree of Master of Science in Veterinary Public Health

By:
Samuel Aytenfsu Desta

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Bishoftu, Ethiopia

Addis Ababa University

College of Veterinary Medicine and Agriculture

Department of Microbiology, Immunology and Veterinary Public Health

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Seroprevalence of brucellosis in ruminants and human in and around Debrebrihan, Ethiopia

Submitted by: Samuel Aytenfsu _____ _____

Name of Student Signature Date

Approved *for submittal to* thesis assessment committee

1. Dr. Gezehagne Mamo _____ _____

   Major Advisor Signature Date

2. Prof. Gobena Ameni _____ _____

   Co-Advisor Signature Date

3. Dr. Bedaso Mamo _____ _____

   Department chair person Signature Date

Addis Ababa University

College of Veterinary Medicine and Agriculture

Department of Microbiology, Immunology and Veterinary Public Health

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As members of the Examining Board of the final MSc open defense, we certify that we have read and evaluated the Thesis prepared by: Samuel Aytenfsu Entitled Seroprevalence of brucellosis in ruminants and human in and around Debrebrihan, Ethiopia and recommend that it be accepted as fulfilling the thesis requirement for the degree of Masters of science in Veterinary Public Health.

Dr. Fenta Dessisa	_____	_____
Chairman	Signature	Date
Dr. Kebede Amenu	_____	_____
External Examiner	Signature	Date
Dr. Bedaso Mamo	_____	_____
Internal Examiner	Signature	Date

1. Dr. Gezehagne Mamo _____ _____

   Major Advisor Signature Date

2. Prof. Gobena Ameni _____ _____

   Co-Advisor Signature Date

3. Dr. Bedaso Mamo _____ _____

   Department chairperson Signature Date

Statement of author

First, I declare that this thesis is my *bonafide* work and that all sources of material used for this thesis have been duly acknowledged. This thesis has been submitted in partial fulfillment of the requirements for an advanced (MSc) degree at Addis Ababa University, College of Veterinary Medicine and Agriculture and is deposited at the University/College library to be made available to borrowers under rules of the Library. I solemnly declare that this thesis is not submitted to any other institution anywhere for the award of any academic degree, diploma or certificate.

Name: Samuel Aytenfsu Signature:_____

College of Veterinary Medicine and Agriculture, Bishoftu

Date of Submission:_____

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LIST OF ABBREVIATIONS

CFT	Complement fixation test
CSA	Central Statistical Agency
DNA	Deoxyribonucleic acid
ELISA	Enzyme Linked Immunosorbent Assay
FAO	Food and Agriculture Organization
MOWR	Ministry of Water Resource
OIÈ	Office International des Epizooties
OPS	*O*15 polysaccharide
PA	Peasant association
PCR	Polymerase Chain Reaction
RBT	Rose Bengal Test
SAT	Slid agglutination test
S-LPS	Smooth lipopolysaccharide
TAT	Tube agglutination test
WHO	World Health Organization

ABSTRACT

A cross-sectional study was conducted in and around Debrebrihan , North Shewa zone of Amhara region to determine the Seroprevalence of brucellosis in ruminants and human in and around Debrebrihan from November 2013 to May 2014. A total of 384 ruminants (cattle, sheep and goats) and 134 human patients were randomly selected samples serologically tested for brucella antibodies. In addition, questionnaire survey involving 150 community members carried out to assess their perception about the disease. The overall seropositivity in ruminants in the study area was found to be 2.3% (95% CI: 0.01-0.04) by RBPT and 0% by CFT. The overall brucella seropositivity in a human was found to be 13.4 %(95% CI: 0.08-0.19) by RBPT and CFT. There were statistically significant difference in the prevalence of human brucellosis between different occupations ($\chi2$ = 10.26, P = 0.006), raw milk consumption ($\chi2$ = 4.56, P = 0 .033) and contact with placenta ($\chi2$ = 72.08, P = 0.000) identified as risk factors of brucella infection. The multivariable logistic regression analysis showed that being a farmer had 4.7 times the odds of being brucella reactors compared with those patients having other occupations and having raw milk consumption habit had 7.05 times the odds of being brucella reactors compared with those patients not having raw milk consumption. However, there was no statistically significant difference between male and female(x^2 =0.51, p=0.48), age groups ($\chi2$ = 1.34, P = 0.51), education levels ($\chi2$ = 5.28, P = 0.153) and raw meat consumption ($\chi2$ = 3.55, P = 0.060) in the prevalence of human brucellosis. This finding revealed that there was no ruminant and human brucellosis in Debrebrihan. However, there was high prevalence of human brucellosis in other districts of north shewa zone around Debrebrihan. Hence, the study suggests that the need for implementing control measures and raising public awareness for prevention of brucellosis in the area of high prevalence of human brucellosis.

Key words: Brucellosis, Debrebrihan, Human, Questionnaire, Ruminant, Seroprevalence