

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  
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Seroprevalence of brucellosis in ruminants and human in and around Debrebrihan,  
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## **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.

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**FIGURE**

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**Figure 1** Districts of North Shewa zone, Amhara Regional State (Debrebrihan).....29

## 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
OIE	Office International des Epizooties
OPS	<i>O</i> 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 ( $\chi^2 = 10.26$ ,  $P = 0.006$ ), raw milk consumption ( $\chi^2 = 4.56$ ,  $P = 0.033$ ) and contact with placenta ( $\chi^2 = 72.08$ ,  $P = 0.000$ ) 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 ( $\chi^2 = 0.51$ ,  $p=0.48$ ), age groups ( $\chi^2 = 1.34$ ,  $P = 0.51$ ), education levels ( $\chi^2 = 5.28$ ,  $P = 0.153$ ) and raw meat consumption ( $\chi^2 = 3.55$ ,  $P = 0.060$ ) 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