

Preface

This study is a part of research project entitled: In Compliance with World Trade Organization (WTO) Agreement on the Application of Sanitary and Phytosanitary Measures by Formulating a Long Term Animal Brucellosis Control Strategy in Khartoum State, funded by Sudan University of Science and Technology.

DEDICATION

I would like to dedicate this work to my family in thanks for all of their loving support.

To my parents, thank you for encouraging me both in academics and life.

To my husband thank you for always believing in me, for your emotional support, finally, to my kids

Acknowledgements

Thanks and praise to Allah who gave me the health and the strength to Complete this work.

I consider myself fortunate and greatly privileged to have worked under the supervision and guidance of Dr. Tamador Elkhansaa Elnour Angara Department of Development Studies and Extension Economic, College of Animal Production Science and Technology, Sudan University of Science and Technology. She provided full support. I am truly grateful to her for her patience and guidance. The critical advices, invaluable suggestions, and scholarly guidance helped me throughout the course of my research work and helped me to overcome many tough moments. Words can never express the high regards I have towards her .

I wish to express my appreciation to all the professors, doctors and technicians at soba research lab. My special gratitude is due to Dr. Enaam Mohammed El Sanousi for generosity in providing theoretical and practical knowledge. Sincere appreciation is to the Jebel Aulia veterinary services staff for their help in the field work. I'm also grateful to professor Mohamed Taj ELdin for the analysis of the data. Also thanks to the late professor Ahmed Ali Ismail mercy upon him for providing unlimited support. And thanks also go to the owners for collaboration.

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Abstract

This cross-sectional study was carried out to determine the prevalence and risk factors and economic effect of brucellosis in ruminants' population in Jebel Aulia locality, Khartoum State. A total of 393 serum samples were collected from 53 herds, out of which 207 were bovine, 84 ovine, 82 caprine and 20 camels. The serum samples were screened for presence of brucella antibodies using RBPT and the positive samples were confirmed by C-ELISA test. The results pointed out that, prevalence of brucellosis among herds/flocks of cattle, camel, sheep and goats were 76% (22/29), 20% (1/5), 13% (1/8) and 18% (2/11) respectively. The individual animal prevalence were 19% (39/207), 5% (1/20), 1% (1/84) and 4% (3/82) respectively.

A survey using questionnaire was conducted to collect the required epidemiological data. The risk factors were investigated using logistic regression analysis. The test revealed that only abortion cases (OR.001, CI.00-.247, p -value.014) and source of water (OR1.51, CI 2.949-7.745E5, p -value.021) were significant ($P < 0.05$) risk factors.

The estimation of loss in milk production due to bovine brucellosis was found to be SDG39,210 (US\$8,524), loss due to abortion was SDG 12,600 (US\$ 2,739) and finally loss due to infertility problem was SDG 3,120 (US\$ 678). The total loss in the sample was SDG 55,530 (US\$ 12,072) .The total loss in the herd sampled investigated was SDG 198,245 (US\$43,097). And finally the financial loss due to brucellosis in the whole locality was SDG 3,402,620 (US\$739,700).

This study provides necessary information about prevalence and risk factor of the disease in the study area which may help the decision makers in setting the priority of disease control.

مستخلص البحث

أجريت هذه الدراسة لتحديد مدى انتشار مرض البروسيلا (الاجهاض المعدى) ،عوامل الخطر والاثار الاقتصادية المرتبطة بالمرض في الحيوانات المجترة في منطقة جبل اولياء.جمعت 393 عينة مصل دموي من 53من القطعان،منها 207 عينة من الأبقار،20 عينة من الابل،84 عينة من الأغنام و82عينة من الماعز.تم فحص عينات المصل للتأكد من وجودالأجسام المضادة للبروسيلا باستخدام فحص روز بنغال (RBPT) وتم تأكيد العينات الإيجابية بواسطة فحص اليسا (C-ELISA).أشارت النتائج إلى أن نسبة انتشار المرض بين قطعان الماشية والإبل والأغنام والماعز كانت 76%(22/29)، 20%(1/5)و 13 % (1/8) و 18%(2/11) على التوالي وكانت نسبة العينات الموجبة لمرض البروسيلا فى العينات التى تم جمعها 19%(207/39)، 5%(20/1)، 1%(84/1)و4%(82/3)على التوالي.

أجري مسح ميداني لجمع عوامل الخطر الوبائي المطلوبة باستخدام الاستبيان. كشف تحليل الانحدار اللوجستي أن حالة الإجهاض (OR.001,CI.00-.247, *p*-value.014) ومصدرالمياه (OR1.51,CI 2.949-7.745E5, *p*-value.021) هما عوامل الخطر المرتبطة بالمرض بالمحلية

تم تقدير الخسارة المالىة في إنتاج الحليب بسبب بروسىلا الأبقار لتكون 39,210 جنيه سوداني 8,524 دولار امريكي، وكانت الخسارة بسبب الإجهاض 12,600 جنيه سوداني 2,739 دولار وا بسبب مشكلة العقم 3,120 جنيه سوداني678 دولار أمريكي.والخسارة الكلية في العينة كانت 55,350 جنيه سوداني 12,072 دولار امريكي ومجموع الخسائر في القطعان التي استهدفت في البحث كان 198,245 جنيه سوداني 43,097 دولار أمريكي والخسائر المالية نتيجة لمرض البروسيلا في محلية جبل اولياء كانت 3,402,620 جنيه سوداني 739,700 دولار امريكي.

أوضحت هذه الدراسةالمعلومات اللازمةحول انتشار المرض وعوامل الخطر المرتبطة به في محلية جبل اولياء مما يساعد السلطات البيطريه في تحديد أولويات مكافحة الأمراض.