

DEDICATION

TO

**MY PARENTS, BROTHERS, DEAR WIFE AND TO
MY DAUGHTER**

Acknowledgement

First of all, I would like to thank **ALLAH** who gave me the ability to finish this thesis and research. I am deeply indebted to express my deep thanks to professor Mohamed Abdelsalam Abdalla Department of Preventive Medicine and Public Health College of Veterinary Medicine Sudan University of Science and Technology for his faithful help, planning of the work,unreserved technical and professional advice, correction of the research and provision of valuable reference materials, sincere guidance that facilitate completion of this work. I felt great honor to work under his kind supervision. I owe a great deal of thanks to all professors, doctors, teachers and assistant staff of the college.

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Abstract

Across -section study was conducted from December 2013 to Novemer 2015, to determine the prevalence of brucellosis in camels (*Camelus dromedarius*) in Alzulfi Governorate, north Sudi Arabia. A total of 750 camels in 59 herds were included in the study from In farming (375) , and Around grazing (375) . Of these, 71.9% (539 out of 750) and 28.1% (211 out of 750) were female and male camels respectively. A total of 750 blood samples were collected and screened by RBPT. Forty nine samples tested positive giving an individual prevalence rate of 6.5% (49/ 750).

All RBPT positive reactors were further tested by C-ELISA for confirmation. C-ELISA confirmed 24 seropositive out of 49 RBPT reactors (49%). Thirty three herds were found seropositive among the 59 herds included in the study giving herd prevalence of 55,9% .

The prevalence of the disease in infarming camels was 9,9% which is higher than those in around grazing 3,2 with significant statistical difference at the multiveriate level($p < 0.05$). Seroprevalence of brucellosis according to RBPT 7,2 in female camels was 7.2% which is relatively higher than that of male camels which was 4.2 % . There was also an increase in seropositivity with respect to increasing herd size.Seroprevelance was 15 % in small herds (< 10), 6.4 % in medium herds (10-20) and 6.5 % in large herds (> 5). Immature animals (< 5 years) had statistically significant lower reactors than adult camels (> 5 years). In this study the seroprevalence ofbrucellosiswas3,9 % in young and 7.7 % in adult camels. Mixed rearing of camels with other ruminants (cattle, sheep and goat) showed no significant effect on the prevalence of camel brucellosis ($P < 0.05$). Camels reared with other ruminants showed a seroprevalence of 6,9% which was higher than that in camels kept alone.

Conversely, breed, herd, herdtype, feeding, production type, contact with

other camel herd type, milking hygiene, herd man education, awareness of brucellosis ($P < 0.02$) in the multivariate analysis. Multivariate analysis showed that herd size comprising more than 20 camels was significantly associated with seroprevalence of camel brucellosis. The results of the present study provide the status of seropositivity to *Brucella* in camels in Alzulfi governorate and the risk factors that contribute to seropositivity in dromedaries and showed that brucellosis is widely distributed disease among camel herds in Alzulfi governorate.

ملخص البحث

وقد أجريت دراسة مقطعية من ديسمبر 2013 إلى نوفمبر 2015 لتحديد مدى إنتشار مرض البروسيلة وتحديد عوامل الخطر لداء البروسيلة في الإبل وحيدة السنم بمحافظة الزلفي شمال المملكة العربية السعودية.

أدرجت مجموعه 750 من الإبل في 59 من القطعان في الدراسة من المزارع داخل المحافظة وعددها (375 رأس)، الإبل التي ترعى في الصحراء حول المحافظة وعددها (375 رأس). من هذه كانت 71.9% (539 من 750) و 28.1% (211 من 750) الإبل الإناث والذكور على التوالي، تم جمع ما مجموعه 750 عينة دم وفحصت باختبار الـروزبنقال. أعطي الإختبار تسعة وأربعون عينة إيجابية (49) وهو ما يعطي معدل انتشار الأفراد 6.5% (750/49). تم اختبار جميع العينات الإيجابية الـ (49) بإختبار الامتصاص المناعي الأنزيمي التنافسي المرتبط، أكد الاختبار 24 من أصل 49 عينة موجبة تم العثور على ثلاثة وثلاثين قطيع به اصابة من بين 59 من القطعان التي شملتها الدراسة، ونسبة انتشار المرض في القطعان 55.9%. وبلغت نسبة انتشار المرض في الإبل داخل المحافظة 9.9% وهي نسبة أعلى من تلك الموجودة في صحراء النفود حول المحافظة مع فروق ذات دلالة إحصائية عند مستوى ($p < 0.05$). كان الانتشار المصلي للحمي المالطية وفقا لاختباري الـروزبنقال 7.2% في الإبل الإناث وهو أعلى نسبيا من تلك الإبل الذكور التي كانت 4.2% كان هناك أيضا زيادة في إنتشار مرض البروسيلة فيما يتعلق بزيادة حجم القطيع. كان 15% في قطعان صغيرة (>10)، 6.4% في قطعان المتوسطة (10-20) و 6.5% في القطعان الكبيرة (<5). كان (5 سنوات المفاعلات أقل دلالة إحصائية من الإبل الكبار الحيوانات غير ناضجة) (<5 سنوات). في هذه الدراسة كان معدل الانتشار المصلي من الحمى المالطية 3.9% في الصغار و 7.7% في الجمال الكبار. وأظهرت تربية مختلطة من الإبل مع الحيوانات المجترة الأخرى (الأبقار والأغنام والماعز) ليس له تأثير كبير على انتشار مرض البروسيلة ($P > 0.05$). وأظهرت الإبل التي تربي مع الحيوانات المجترة الأخرى أعلى إنتشار للمرض 6.9% وهي نسبة أعلى من تلك الإبل التي تربي لوحدها. على العكس من ذلك، الولادة، نوع القطيع،، التغذية، نوع الإنتاج، والاتصال مع قطعان أخرى، نوع قطيع الإبل، الحلب و النظافة والتعليم، والتوعية بداء البروسيلة ($P > 0.02$) في التحليل متعدد المتغيرات لم تؤثر علي حالة الإصابة بالمرض. وأظهر التحليل متعدد المتغيرات أن حجم القطيع التي تضم أكثر من 20 من الإبل كان مرتبطا بشكل كبير مع انتشار مرض البروسيلة في الإبل. نتائج هذه الدراسة توفر حالة إنتشار مرض البروسيلة في الإبل في محافظة الزلفي وعوامل الخطر التي تساهم في انتشار المرض بين قطعان الإبل بمحافظة الزلفي بالمملكة العربية السعودية.

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