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Dedication

*This work is dedicated to my beloved
mother, father, brothers and sisters and
to my friends and teachers*

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Firstly, praises to almighty Allah for giving me the strength and stamina to finish this work.

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Abstract:

A cross-sectional study was conducted during period which extended from April to June 2011, to determine the prevalence of *Babesia* species in cattle and to identify risk factors for babesiosis infection in cattle in five localities of Eas Darfur State. A total of 300 cattle in 27 herds were included in the study. Samples were randomly collected from selected animals, indigenous (Baggara) and cross breed cattle of both sexes. A percentage of 10 % of the cattle were positive for *Babesia bigemina* by microscopic examination of the Giemsa stained blood smears, while 8 % were sero-positive for *Babesia bovis* by indirect fluorescent antibody test. The overall prevalence was 18%. In univariate analysis the Chi-square results showed that there is significant association (p-value < 0.25) between various risk factors and disease. The prevalence of bovine babesiosis infection according to age of cattle was 5.7% in animals less than 2 years, 17.0% in animals from 2 to 4 years and 26.3% in animals more than 4 years (p- value 0.002). The prevalence of bovine babesiosis infection according to breed of animals was 18.9% in indigenous Baggara breed which is higher than 5.3% in cross breed (p-value = 0.135). As for body condition the prevalence was 3.4% in good body condition and 19.6% in poor body condition (p-value=0.032). Our study showed that a significant association was observed between the infection and ticks count on the animals: (p - value = 0.001). Regarding previous history of disease, the prevalence of babesiosis infection was 31.2% in previously affected animals and 16.4% in not previously affected animals (p - value = 0.039). Considering grazing system, the prevalence was 9.0% in nomadic system, 14.8% in stationary system and 23.7% in semi nomadic system (p - value =.009). According to the geographical areas the prevalence was 27.0% in Assalaya, El Deain 22.4%, Abu Jabra 22.0%, El Fardous

18.9% and Bahr Elarab 9.0% (p-value = 0.059). The multivariate analysis of presumed risk factors revealed age of the animals as the major risk factor associated with positivity of disease (p-value = 0.006). The current study also illustrated that ticks count on the animals was significantly associated with babesiosis in cattle (p-value = 0.013). Grazing system was significantly associated with a lower risk of infection with *Babesia species* in cattle (p-value=0.047) than that associated with age and ticks count. Seven tick species were found on cattle in the study area belong to the genera *Amblyomma*, *Boophilus*, *Rhipicephalus* and *Hyalomma*.

ملخص البحث

أجريت دراسة مقطعية خلال الفترة التي امتدت من إبريل الي يونيو ٢٠١١ ، لتحديد مدي انتشار انواع الباييزيا في الأبقار وتحديد عوامل الخطر المرتبطة بعدوى باييزيا الأبقار في خمس مناطق من ولاية شرق دارفور. وقد أدرجت في الدراسة مجموعة ٣٠٠ بقرة من ٢٧ قطع . تم جمع عينات عشوائية من الحيوانات المحددة ، واخذت عينات من الأبقار المحليه (البقارة) والأبقار الهجين من كلا الجنسين . كانت نسبة ١٠% من الأبقار إيجابية للتوأمية الباييزيه بواسطة الفحص المجهرى لمسحات الدم المصبوغة بالجيمسا بينما ٨% إيجابية مصلية للباييزيا البقرية بواسطة إختبار التآلق المناعي الغير مباشر للأجسام المناعيه، نسبة الإنتشار العام للمرض ١٨% . في التحليل وحيد المتغير أظهرت نتائج إختبار مربع كاي أن هناك علاقة وثيقة (-p value < 0.25) بين مختلف عوامل الخطر والمرض ، وإنتشار عدوى داء الباييزيا في الأبقار وفقا للعمر ٥,٧% في الحيوانات اقل من ٢ سنه ، ١٧,٠% في الحيوانات من ٢ الي ٤ سنوات ، و ٢٦,٣% في الحيوانات أكبر من ٤ سنوات (p-value=0.002). وكان معدل إنتشار عدوى داء الباييزيا البقرى وفقا لسلالة الحيوانات ١٨,٩% في سلالة أبقار البقارة المحلية وهي نسبة أعلي من السلالة الهجين ٥,٣% (-p value = 0.135). أما بالنسبة لحالة الجسم كان معدل الإنتشار ٣,٤% في حالة الجسم الجيد و ١٩,٦% في حالة الجسم الهزيل (p-value=0.032) . وأظهرت دراستنا وجود علاقة ذات دلالة إحصائية بين العدوى وعدد القراد على الحيوانات: (p-value = ٠,٠٠١). النظر في نظام الرعي ، كان الإنتشار ٩,٠% في نظام البدو الرحل، ١٤,٨% في النظام الثابت و ٢٣,٧% في النظام شبه الرحل (p-value=٠,٠٠٩) . وفقا للمناطق الجغرافيه كان الإنتشار ٢٧,٠% في عسلايه ، الضعين ٢٢,٤% ، أبو جابره ٢٢,٠% ، الفردوس ١٨,٩% ، و بحر العرب ٩,٠% (p-value = ٠,٠٥٩) .

كشف التحليل متعدد المتغيرات عوامل الخطر المفترضة وعمر الحيوانات من العوامل الرئيسية المرتبطة بإيجابية المرض (p-value = 0.006). كذلك الدراسة الحالية توضح أيضا أن أعداد القراد على الحيوانات لها إرتباط معنوي مع داء الباييزيا في الماشية (p-value=0.013). نظام الرعي أرتبط معنويا مع إنخفاض خطر الإصابه مع أنواع الباييزيا في الأبقار (p-value= ٠,٠٤٧). تم العثور علي سبعة أنواع من القراد علي الماشية في منطقة الدراسة تنتمي إلي أجناس *Rhipicephalu*، *Boophilus*، *Amblyomma* و *Hyalomma*