

## **Acknowledgements**

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## **Dedication**

**I dedicate this work to  
my mother Souad  
Ibrahim Abdelmajed , my**

**uncle Mohammed Ibrahim Abdelmajed , my  
uncle Dr. Ahmed Elmustafa Hassan ,my  
brother Ahmed Mukhtar ,  
my sister Amna Mukhtar ,whom i love my  
kids Ahmed ,Abobaker,  
Ibrahim ,Youmna ,Shahed  
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husband ,my coming  
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### **Abstract**

A cross-sectional study was conducted from June to July 2013 in three localities of Khartoum State (Khartoum, Omdurman, and Bahrry) - Sudan.

The aims of these study to estimate the seroprevalence of Foot and Mouth Disease virus and to determine the risk factors which could be associated with Foot and Mouth Disease of cattle in Khartoum State . A total of 132 bovine serum samples were collected from three localities (Khartoum 14, Omdurman 73, and Bahrry 45) and tested for antibodies against FMD virus by using the Virus neutralization test. Semi structured questionnaire format was prepared and 9 informants were interviewed. Out of 132 serum samples were screened against the two serotypes (O and SAT2) of three serotypes of FMD known to be in circulation in Sudan (O. A and SAT2). The overall sero-prevalence of FMD in the in Khartoum State was found to be 53.4% (CI = 95%). Out of 132 serum samples examined at National Veterinary Institute by Virus neutralization test one hundred and ten

serum samples were found to be positive for the disease(83.3%), while twenty two serum samples tested negative(16.7%). One hundred and nine (82.6%) were positive for the serotype (O). The highest prevalence was observed at Omdurman (86.30 %) followed by Khartoum (78.57 %) and Bahrry (77.78%). While thirty two (24.24%) tested positive for serotype (SAT2). The highest prevalence was observed at Khartoum (28.57 %) followed by Bahrry (24.44%) and Omdurman (23.29 %). There was a high prevalence in the circulation of serotype (O) as compared with the serotype (SAT2).

Statistically there was high significant association between seropositivity of FMDV serotype (O) and age of animals (p-value = 0.001), hygienic Practices.

(P-value = 0.029), distance between farms (P-value = 0.029) and green fodder (P-value = 0.029). But no association between the seropositivity of theses serotype and sex of animals (p-value = 0.068).

The results of association of FMDV serotype (SAT 2) showed no significant association between these serotype and breed (p-value = 0.251) and body condition (p-value = 0.251). But showed high significant association between seropositivity of FMDV serotype (SAT 2) and herd size (p-value = 0.007) and previous history of infections of other diseases in the farms (p-value = 0.003).

The results of this study showed that FMD is an important cattle disease in the study areas. This fact justifies the need of attention and subsequent study to determine the recently circulating virus strains and factors responsible for the widespread seropositivity which helps to design appropriate control strategies and to implementation of an

effective control measures to limit the effect of FMD particularly on the Sudanese cattle.

## ملخص البحث

أجرى مسح وبائي لايجاد نسبة انتشار وعوامل الخطر لمرض الحمى القلاعية (أبو لسان) في الإبقار بولاية الخرطوم في الفترة من مطلع يونيو حتى يوليو 2013م . حيث تم جمع عدد 132 عينة سيرم دم من كل محليات الولاية **Virus** الثلاثة. تم فحص العينات بمعمل البحوث البيطرية بسوبا بواسطة **neutralization test** وذلك لتحديد النوع المسبب للمرض . أظهرت النتائج أن معدل انتشار المرض عموماً 53.4% . 110 عينة دم أعطت نتيجة إيجابية للمرض بينما 22 عينة أعطت نتيجة سلبية. أظهرت النتائج بصورة كان بنسبة **serotype (O)** تفصيلية أن معدل انتشار المرض للنوع الأول 82.6% (109 من 132) أعلاه في محلية أمدرمان تليها محلية الخرطوم ثم كان **serotype (SAT 2)** بحرى، وأن معدل انتشار المرض للنوع الثانى بنسبة 24.24% (32 من 132) أعلاه في محلية الخرطوم تليها محلية بحرى ثم أمدرمان. تم ملء استبيان يحوى كل عوامل الخطر التى يحتمل أنها تساعد فى إنتشار المرض وذلك بمساعدة 9 من ملاك الحيوانات المختارة . بالمقارنة بين نسبة الإصابة بين النوعين وسط الحيوانات المفحوصة نجد أن معدل الإصابة بالنوع الأول هى الأعلى.

بعد التحليل الإحصائى بمربع كاي ومعدل الارتباط اظهرت الدراسة ان **serotype** هناك علاقة معنوية بين الإصابة بمرض الحمى القلاعية من نوع و عمر الحيوان ، مستوى النظافة المتبع بالمزرعة، تناول الحيوانات **(O)** بينما لا توجد ، ( $p < 0.05$ ) للعلف الأخضر ووجود مسافة معقولة بين المزارع 0.05 اظهرت . ( $p > 0.05$ ) علاقة معنوية بين جنس الحيوان والإصابة بالمرض الدراسة أيضاً ان هناك علاقة معنوية بين الإصابة بمرض الحمى القلاعية من وحجم القطيع وكذلك الإصابة مسبقاً ببعض **serotype (SAT 2)** نوع بينما لا توجد علاقة معنوية بين سلالة . ( $p < 0.05$ ) الأمراض الأخرى 0.05 . ( $p > 0.05$ ) الحيوان وهيئة الجسم والإصابة بالمرض

النتائج بهذه الدراسة توضح أهمية هذا المرض بالولاية، أيضاً تلفت الإنتباه إلى ضرورة عمل دراسات دورية لمعرفة الأنواع المتواجدة بالولاية وكذلك العوامل المساعدة فى الإنتشار من أجل توضيح الصورة الحقيقية الراهنة



للمرض للمسؤولين من أجل وضع خطط محكمة لتنفيذها في الوقت المحدد  
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