

DEDICATION

This thesis is dedicated to my late
father and mother, to my brother and sister
and to my wife and children, with
love.

ACKNOWLEDGEMENTS

This work was carried out jointly in the College of Veterinary Medicine Sudan University of Science and Technology and College of Veterinary Medicine - King Faisal University.

I am indebted to my supervisors Professor Abdel Gadir Musa Homeida and Professor Shadia Abdul Ati Omar for their guidance ,encouragement and patience during this work.

Thanks are due to my wife, Manal for having the journey of developing this thesis with me. I would like to thank her for the unlimited understanding, positive spirit and love which supported me through my difficult times. I would also like to thank our children for their continued love and appreciation.

Thanks are extended to my brother in law Nedal for his brilliant ideas, from which I always benefit.

ABSTRACT

The objective of this study was to establish antibiotic withdrawal time in camel and cow products and compare that to what proposed by drugs companies. Forty two camels were used in the study. They were divided into 3 groups of 14 animals each. One drug was injected into each group (Sulphadimidine sodium 33%, Terramycin (50mg/ml), and Ampicillin sodium for 3 days. Thereafter, samples of blood were first collected for analysis. Two animals from each group were slaughtered after 24 hours, 3, 7, 14, 21, 28, and 35 days following antibiotic administration. Liver, Kidney and muscle were collected for further analysis. Samples of camel product collected from slaughterhouse at a period of 4 weeks (200 samples Liver and 200 samples Kidney). The results of the 4 antibiotics which further confirm the observation that withdrawal period in the camel to be significantly longer than in cow. The values were 4days for cows and 5 days for the camel for ampicillin and cloxacillin, 4 days for the cow and 6 days for the camel for oxytetracycline and cefruxime. The withdrawal period of ampicillin, oxytetracyclin, and sulphadimidine in camel milk and tissues was found to be longer as compared to that of other animals. Residue concentrations of antibiotic that exceeded MRL were found in dairy camel milk and tissues of slaughtered camels.

It is recommended that estimation of withdrawal period should be done for every drug in camel and not extrapolated of doses from other animals. Effects including awareness, creation and observance of withdrawal period should be employed. Effective surveillance, monitoring and control of the

use veterinary drugs should be performed to prevent drug residues in animal products.

ملخص الأطروحة

لقد كان الهدف من إجراء هذه الدراسة هو تحديد فترة سحب الدواء بالنسبة للمضادات الحيوية في الحليب و المنتجات الحيوانية في الجمال و الأبقار و مقارنتها مع تلك المحددة من قبل شركات الأدوية خاصة أن الشركات لا تعطي فترة سحب الدواء من الجمال. و ذلك لضمان إنتاج لحوم و حليب خاليه من بقايا المضادات الحيوية. تم استخدام 42 جمل ذكر و قسمت إلى 3 مجموعات كل مجموعه إلى 14 جمال و تم حقن مضاد حيوي في كل مجموعه (سلفامدين، ترميسين، و امبسلين) لمدة 3 أيام و من ثم تم سحب عينات من الدم للتحليل. ثم تم ذبح 2 من الجمال بعد 24 ساعة ثم بعد 3 أيام، 7، 14، 21، 28، 35 يوما بعد حقن المضاد الحيوي في الجمال. كما تم اخذ عينه من الكبد و الكلية و من الحم للتحليل. وكذلك تم اخذ عينات عشوائية من المسالخ 200 عينه من الكبد و 200 عينه من الكلية. نتيجة التحليل أظهرت أن مدة تخليص الجسم من المضادات الحيوية من الجمال أطول من الأبقار. 4 أيام في الأبقار-5 أيام في الجمال من المضادات الحيوية الامبسلين و الكلوكساسلين. 5 أيام في الأبقار إلى 6 أيام في الجمال من اوكسيتترا سيكلين و السفيروكسيم. وكذلك إيقاف استخدام الحليب بعد إعطاء المضادات الحيوية في الجمال أطول من الأبقار.

لذلك يوصى:

بان يقترح عمل دراسة على مدة خلو المضادات الحيوية من لحوم الجمال و لا ينظر لها كباقي الحيوانات.

متابعه الادويه البيطرية ووضع مده تحريم لأكل لحوم الجمال حتى خلوها من بقايا المضادات الحيوية.

LIST OF TABLES

Tables	Page No.
Table (1) : Protocol for administration of drug	13
Table (2) : Effects of Intramammary Administration of Curaclox(ampicillin+cloxacillin), Oxymast (oxytetracycline) and Spectrazol (cefruxime) on concentration of antibiotic in camel milk.	17
Table (3) : Detection limits of Brilliant Reduction test (BRT) in milk of camels and cows treated with intramammary antibiotic preparations.	18
Table (4) : Mean($\pm 5D$) plasma and tissue concentration of Na-ampicillin in camels receiving a single dose of 5mg/kg body weight/day for 3 days.	20
Table5: Mean ($\pm 5D$) plasma and tissue concentration of oxytetracycline in camel receiving a dose of 5mg/kg body Wight/day for 3 day.	22

Table (6): Mean ($\pm 5D$) plasma and tissue concentration of sulphadimidine in camel receiving a dose of 50 mg/kg sulphadimidine.	24
---------------------------------------------------------------------------------------------------------------------------------------	-----------

Tables	Page No.
Table (7) : Diameter of Inhibitory Zones of positive tissue samples (liver and kidney) for antibacterial from slaughtered camel in Riyadh city during April-July, 2010.	26
Table (8) Diameter of inhibitory zones of positive milk samples collected from camel in Riyadh city in April-July 2010.	28

List of Figures

Figure	Page No.
Figure 1 Following Intramammary Administration of Curaclox (ampicillin+cloxacillin), Oxymast(oxytetracycline) and Spectrazol(ceftraxime) on concentration of antibiotic in camel milk.	21
Figure 2 Mean ($\pm 5D$) plasma and tissue concentration of Na-ampicillin in camels receiving a dose of 5mg/kg body weight/day for 3 days.	25
Figure 3 Mean ($\pm 5D$) plasma and tissue concentration of oxytetracycline in camel receiving a dose of 5mg/kg body Wight/day for 3 day.	28
Figure 4 Mean ($\pm 5D$) plasma and tissue concentration of sulphadimidine in camel receiving a dose of 50 mg/kg sulphadimidine.	31

INTRODUCTION

The primary purpose of veterinary drugs, is to safeguard the health and welfare of animals (Cannavan 2010). Antibiotics used for these purposes can occur as residues for some time in these animals before they are excreted. A chemical residue is either the parent compound or its metabolites that may deposit, accumulate or otherwise be stored within the cells, tissues, organs or edible products of animals following its use to prevent, control or treat animal disease or to enhance production (Riviere and Sundlof 2001). Drugs are the most frequently detected chemical residues, the overwhelming majority of which are antimicrobials (Sundlof , Fernandez and Paige , 2000), and are commonly used drugs in veterinary practice in Nigeria (Galtier . and Charpenteau ., 1979). The concerns over drug residues are public health and economically related (Sundlof *et al*, 2000). Drug and pesticide residue concerns are among the reasons for third world denial into European and American livestock markets (Galtier and Charpenteau ,1979). The palatability, aroma and quality of meat could be affected by drug residues. Residues of drugs in food animal threaten human health by being acutely or cumulatively

allergenic, organotoxic, mutagenic, teratogenic or carcinogenic. The actual withdrawal time appearing on antibiotic label is also a function of experimental design that the manufacturer uses in the research studies. Such labels contain no information about withdrawal times in camels and veterinarians have to extrapolate withdrawal times of drugs for camels from other species. This is scientifically unacceptable, since the camel differs in its physiological, anatomical and pharmacological

characteristics from other animals (Abdulla and Abdulla 1979, Al-Dughaym et al 1998). Furthermore, this is not without danger because toxic reactions sometimes occur in camels given certain drugs at doses which are apparently harmless to other species (Homeida et al 1981).

OBJECTIVES

General Objective

To study the residues of used antibiotics in camel.

The specific objectives of this study were:

1. Determination of residues of some antibiotics in milk and meat of camels in Riyadh region
2. Establishment of withdrawal period of ampicillin, oxytetracycline and sulphadimidin in camels meat and milk.

