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Abstract

The study was conducted at Jijiga from October 2009 to May 2010 to isolate and identify the bacterial species from the lung of apparently healthy camels slaughtered in Jijiga Municipality Abattoir. Samples were collected aseptically from the lung for bacteriological examination. Standard microbiological techniques were used for the isolation and identification of the bacterial species. A total of 65 lung samples were examined bacteriologically and the most common lung lesions encountered were pneumonic (64.60

Index terms— camel, lung lesion, bacteria, microbiological techniques, jijiga.

1 I. Introduction

n Ethiopia, camel is found in eastern, south eastern and north eastern arid and semi-arid areas of the country mainly Borana, Ogaden and Afar regions which are believed to account for about one third of the total surface area of the country **??**Teka, 1991). The camel population of Ethiopia is estimated to 2.3 million of which two third is found in eastern lowlands **??**CSA, 2004). Several infectious agents can commonly be isolated from the respiratory tract of clinically sick and health animals. Most of the infectious agents which cause respiratory diseases are ubiquitous in the environment and are present as normal residents in the nasal cavities of normal animals. So these often create difficulty in the interpretation of the microbiological findings in the outbreaks of respiratory diseases (Radostitis et al., 1994).

In Ethiopia few studies were conducted on the extent of respiratory problems of camels as compared to other species of livestock. Generally camel respiratory problem has received little consideration even though it is becoming one of the emerging diseases causing considerable loss of production and death **??**Tesfaye, 1996).

Depending on the background information and the need for identifying the causes of respiratory diseases of camels the present study was conducted with the following objectives.

? To isolate and identify bacterial species involved with the lung of apparently health camels. ? To assess the correlation of different bacteria isolated from different lung lesions.

2 II. Materail and Methods

3 a) Description of the Study area

The study was conducted at Jijiga from October 2009 to May 2010 which is located 636Kms east of Addis Ababa. It is situated 09 0 58'N and 42 0 46' E. The mean annual temperature and rainfall are 18-27 0 and 410-820 respectively. The distribution pattern of the rainfall is bimodal and variable from year to year.

4 b) Experimental Study animals, Study methodology and sampling strategy

The study was conducted on 65 camels that were slaughtered in Jijiga Municipality abattoir for meat purpose. Most of these camels were from Fafen, Gursum, kebribeyah, Degahbur, babile and around Jijiga town.

A post-mortem examination was made by visualization, palpation and incision of the lung, lung airways and the corresponding bronchial lymphnodes for the presence of lesions. The gross appearance and lesion type was also recorded.

5 c) Sample collection and transportation

From the slaughtered camels, a piece of lung lesion was removed by using sterile scalpel blade and forceps and then put in to sterile screw capped universal I bottle. The sample was identified and the tissue specimens were placed in icebox containing icepacks and transported to Jijiga Regional Veterinary Laboratory. After isolation it was transported to National Veterinary Institute (NVI) at Debre Zeit for father identification of the bacteria up to the species level.

6 d) Bacteriological examination and Identification of bacteria

The tissue samples were collected from the sterilized surface area with the help of sterile forceps, scalpel blade and micropipette and then inoculated in to sterile screw capped test tube with 5ml of tryptose broth and incubated at 37 0 c for 24 hours. After 24 hours of incubation, a loop full of the broth culture was planted on to sheep blood agar and incubated aerobically at 37 0 c for 24 hours. After 24 hours of incubation, the isolated colonies were sub cultured on blood agar and Mac Conkey agar and incubated at 37 0 c for 24 hours to 48 hours. Then the single colonies were sub cultured on tryptose agar and slants and incubated for 24 hours at 37 0 c. The slants were preserved at refrigerator temperature for further use.

7 e) Data Analysis

The parameters were subjected to analysis of variance (ANOVA) using the general linear model (GLM) procedure of the statistical analysis system (SAS, 1999). Descriptive statistics were used to summarize the data generated from the study and analyzed using percentage.

8 III. Results

The present study was undertaken to isolate and identify the bacterial species from the lung of apparently healthy camels slaughtered in Jijiga Municipality Abattoir. The total sample was 65 lung samples examined bacteriologically, out of this, 45 samples showed bacterial growth where as 20 samples showed no bacterial growth. The total bacterial isolates were 48 of which 9 isolates were missed due to transportation problem. The most lung lesions that were encountered during sample collection were pneumonic (64.60%), emphysematous (20%) and 15.40% of necrotic foci (figure 1

9 IV. Discussion

This study was conducted in the lung of apparently healthy camels that were slaughtered in Jijiga Municipality Abattoir of Somali Regional State. The Coagulase negative staphylococci (CNS) were the predominant species (48.7%). The rate of isolation was agreed with that of Shemsedin (2002) who reported 46.4% and higher than that of Shigidi (1973) who also reported an isolation rate of 18.8%. The difference might be due to geographical and climatic conditions which favors the survival and maintenance of these bacterial species.

Streptococcus pneumonae was the second prevalent organism (20.5%). The rate of isolation was higher than that of Shemsedin (2002) who reported 1.45% and comparable with that of Tekleselassie (2005) who reported an isolation rate of 18.5% from pneumonic lung of goats.

Escherichia coli had an isolation rate of 12.8%. The rate of isolation was agreed with that of Al-Ani et al. (1998) who reported 12.5%. Rhodococcus equi was isolated at rate of 5.1%. The rate of isolation was agreed with that of Shemsedin (2002) who reported an isolation rate of 5.8%. The report Rhodococcus equi from camel respiratory tract in this study could also be due to inhalation of the organism from the soil.

Mannheimia haemolytica was isolated at rate of 7.7%. The isolation rate was agreed with that of Shemsedin (2002) and Al-Tarazi (2001) who reported 8.7% and 6.6% respectively, but it was much lower than that of Al-Ani et al. (1998) who reported 56.3%. The difference might be due to that he studied only pneumonic lungs.

Corynebacterium kutcheri had an isolation rate of 2.6%. The rate of isolation was agreed with that of Shemsedin (2002) who reported an isolation rate of 2.9%, which is more similar with finding of the recent study. Corynebacterium pseudotuberculosis was isolated at the rate of 2.6%. The rate of isolation was agreed with that of Shemsedin (2002) who reported an isolation rate of 2.9%.

10 V. Conclutions and Recommendations

The most important lung lesions that were encountered were pneumonic, emphysematous and necrotic foci in which the pneumonic lungs were the predominant lesions. The results in this study indicated that a variety of bacterial species isolated from lung of camel in which Coagulase Negative Staphylacocci (CNS) were the most prevalent bacterial species followed by Streptococcus pneumonae, Escherichia coli and Manhaemia hemolytica. Other important bacterial species isolated include Rhodococcus equi, Corynebacterium kutcheri and Corynebacterium pseudotuberculosis. Thus the present study showed that a large variety of bacterial species that live in the respiratory tract of camels which might impede the health, productivity and performance of camels particularly when the animals are stressed. Therefore, based on the above conclusive remarks the following points are recommended:

? Further investigation as to the isolation and characterization of bacteria as well as their role in the respiratory diseases complex of camels should be carried out; therefore, emphasis should be given to camel diseases especially of respiratory problems.

11 VI. Acknowledgment

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negative pneumonae (20.5%), Escherichia coli (12.8%), Rhodococcus equi (5.1%), Manhaemia hemolytica (7.7%), Corynebacterium pseudotuberculosis (2.6%) (Table 1). Shows the frequency of isolation of bacterial species from lung of camels

The isolates include Coagulase staphylococci (48.7%), Streptococcus Corynebacterium kutcheri (2.6%) and

Figure 1: Table 1 :

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Types of bacteria Pneumonic		Emphysematous	Necrotic foci
Coagulase negative staphylococci	11 (57.9%) 5 (26.3%) 3	(15.8%)	
Streptococcus pneumonae	8 (100%)	-	-
E.coli	3 (60%)	2 (40%)	-
Rhodococcus equi	1 (50%)	1 (50%)	-
Manhaemia hemolytica	3 (100%)	-	-
Corynebacterium kutcheri	1 (100%)	-	-
Corynebacterium pseudotuberculosis	1 (100%)	-	-

Figure 2: Table 2 :

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Tests	C. kutcheri	C.pseudotuberculosis	Rh.equi
Nitrate reduction	+ve	-ve	+ve
Urease	+ve	+ve	+ve
Maltose	+ve	+ve	-ve
Sucrose	+ve	-ve	-ve
O/F	F	F	Unreactive
Catalase	+ve	+ve	+ve
Oxidase	-ve	-ve	-ve

+ve = Positive; -ve = Negative; F= Fermentative; C= Corynebacterium; Rh= Rhodococcus.

Figure 3: Table 3 :

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