A SURVEY OF BOVINE MASTITIS IN FOUR DAIRY FARMS IN THE SUDAN *

BY

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Introduction

Bovine mastitis is not as much a therapeutical problem, but rather more a problem of exact diagnosis and prevention. Because of the increasing number of the subclinical cases of the disease there is currently a tendency to use indirect tests, most of which depend upon the leucocytic content of milk. Bacteriological culture is the best method for detecting the disease even in its subclinical forms but the method is limited only to the laboratories.

The purpose of this paper is to isolate and identify the causative agents of bovine mastitis in four dairy farms and to compare the efficacy of three indirect tests with bacterial culture.

Materials and Methods

A total of 203 milk samples were included in this work. The samples were obtained from four government farms, namely: Atbara Dairy Farm (80 samples), Um benein Research Station (62 samples), Gawazat Research Station (31 samples) and Nishesheiba Research Station (30 samples). All samples were collected aseptically in labelled sterile and chemically clean MacCartney bottles that were kept in ice and sent to hte laboratory.

Milk samples so collected were subjected to testing with Barabant mastitis reaction, BMR (Jaarstveld, 1963) California mastitis test, CMT (Schalm and Noorlander 1957) and direct microscopic count of Leucocytes in milk (DMC).

For bacteriological examination each sample was cultured on blood agar, endo agar, staphylococcus medium No. 110 and Sabouraud's dextrose agar. The plates were incubated for 48 hours at 37 C. Identification of the isolated microorganisms was made by microscopical examination of stained films, cultural characteristics and biochemical reactions.

Results

Out of 203 samples taken from four of the Government dairy farms 114 were found positive using BMR, 128 using CMT and 135 using DMC, while using bacterial culture method 138 cases were detected, Table (II) The highest incidence of the disease was found at Um Benein Research Centre (97 %), at Nishesheiba (70 %) while Atbara Research Station showed the lowest incidence (45 %), table (1).

From table II it is evident that by using the DMC method almost all positive cases were detected. The CMT was the second best indirect method for screening.

Bacteriologically, out of the 203 samples, Staphylococcus aureus (Coagulase positive) was isolated from 112 samples, Staph. epidermidis (coagulase negative) from 20 samples, Bacillus cereus from 5 samples and Streptococcus agalactiae from 1 sample, Table I.

Discussion

From the results obtained in this work it is obvious that Staph. aureus is the major causative agent of bovine mastitis. This agrees with the findings of Bagadi (1970) and Wakeem and El Tayeb (1962). The highest incidence being at Um Benein and the lowest at atbara. This might be due to the fact that Kenana breed kept at Um Benein being the best high yeilders in the country are more succeptible to bovine mastitis than the other breeds. In Atbara dairy farm although the cows kept were high yielders than the other breeds but comparatively hygienic and sanitary precautions were better.

Staphylococcus epidermidis which has been proved to be a pathogen of the udder (Holmberg, 1973) was isolated from twenty cases.

Bacterial culture method is the most reliable method for detecting mastitis in milking cows but it can only be performed in the laboratories. DMC is the most reliable method of the indirect tests. The results obtained using this technique have almost coincided with the bacteriological methods, but it is tedious and laborious and cannot be performed

* The study was carried out in 1974.

on large herds. The BMR and CMT are very reliable screening methods and can be performed in the field without much difficulties. The CMT is the easier, handy and more efficient than the BMR which requires more equipments and time.

Table I.

Showing bacterial isolates

Research Station	No. of samples tested	Staph. aureus	Staph. epidermidis	Strept agalactiae	B. cereus	No. of negative	% of positives
Atbara	80	36	—	—	—	44	45%
Gawazat	31	16	—	—	5	10	68%
Um Benein	62	52	8	—	—	2	97%
Nishesheiba	30	8	12	1	—	9	70%

Table II.

Results of milk samples tested by different methods

Research Station	No of samples tested	No of positives BMR	CMT	DMC	Bacterial culture method
Atbara	80	30	34	36	36
Gawazat	31	17	19	20	21
Um Benein	62	52	58	60	60
Nishesheiba	30	15	17	19	21
Total	203	114	128	135	138

BMR – Barabant mastitis reaction
CMT – California mastitis test
DMC – Direct microscopic count of cells in milk.

Summary

Asurvey was carried out to determine the major causative agents of bovine mastitis and to compare the efficacy of three indirect tests with bacterial culture.

Staphlococcus aureus has been found to be the main cause of mastitis in the four dairy farms. Staphylococcus epidermidis was isolated from 20 cases.

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