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INCIDENCE OF MYCOPLASMA INFECTION IN MASTITIC COWS AND BUFFALOES IN UPPER EGYPT

(With Two Tables)

By

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(Received at 16/3/1991)

مدى تواجد الميكوبلازما في حالات التهاب الضرع في الأبقار والجاموس
في صعيد مصر

أحمد زيتون ، طه العلاوى ، ابراهيم سيد، على العبيدى ، صبرى عيسى ، ليلى الشعبيني

تم اجراء هذا البحث على ٧ قطعان من البقر الفريزيان الحلاب وكذلك عدد ٣٠١ جاموسة ووجد أن نسبة انتشار الميكوبلازما في حالات التهاب الضرع الظاهرى في الأبقار والجاموس كانت ١٧٫٧٥٪، ٢٫٠٤٪ على التوالي وقد صنفت جميع المعزولات الى عترتين ميكوبلازما بوفيس وميكوبلازما أرجينيني. ولم يتم عزل الميكوبلازما من حالات التهاب الضرع الخفى ولا اللبن الطبيعي في الأبقار والجاموس.

SUMMARY

Seven Friesian dairy herds and 301 dairy buffaloes were investigated in this study. The incidence of Mycoplasma in mastitic cows and buffaloes was 17.75% and 2.04% respectively. All isolated strains were identified biochemically and serologically as Mycoplasma bovis and Mycoplasma arginini. No Mycoplasma could be isolated from normal or subclinical mastitic milk of cows and buffaloes.

INTRODUCTION

Mastitis is a serious disease of dairy cows and buffaloes and it has still implicated as one of the major disease problems in dairy industry (AKL, 1988). The emergence of Mycoplasma as an important pathogen in the last twenty years has been due primarily to its resistance to antibiotics (EL-EBEEDY, et al. 1985 and EISSA, 1986). Bovine

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mastitis due to Mycoplasma play a great role in economic losses for milk production and fibrosis of udder tissue (AHMED and SABRY, 1989). Mycoplasma bovis was isolated from an outbreak of mastitis in dairy cows in U.S.A. by HALE, et al. (1962). Subsequent of Mycoplasma bovis has been recorded in different dairy herds in Spain, France, Canada and Egypt. (MARCOS BARRADO and SANZ PEREZ, 1967; GOURLAY, et al. 1974; RUHNKE, et al. 1976 and EL-EBEEDY, et al. 1985).

Mycoplasma arginini is one of the few Mycoplasmas isolated from cattle (EISSA, 1989). Both Mycoplasma bovis and Mycoplasma arginini were isolated from mastitic milk of buffaloes and cows by PALE, et al. (1984) and EISSA (1989) respectively.

The aim of the present investigation was to study the incidence of Mycoplasma infection in clinical and subclinical mastitic cows and buffaloes in Upper Egypt.

MATERIAL and METHODS

A total of 1990 dairy Friesian cows, in seven herd, and 301 dairy buffaloes in some governorate, Assiut, Sohag and Qena, of Upper Egypt were subjected to this work. All examined animals were between the first and fifth Lactation seasons. Regarding to the clinical observations (BLOOD, et al. 1981) and California mastitis test (CMT) (SCHALM and NOORLANDER, 1957) mastitic animals were classified into clinical and subclinical conditions. All milk samples were collected in sterile screw capped bottles as method described by AKL (1981) after performing CMT.

Mastitic milk samples were cultured in HN broth and agar media by the methods described by SABRY, et al. (1976). Biochemical characterizations of the isolated purified strains were carried out as described by ERNO and STIPKOVITS (1976). The isolates were identified serologically by growth inhibition (CLYDE, 1964) and Counter-immunoelectrophoresis tests (BOIS, et al. 1984). Fifty normal milk samples were subjected to this investigation.

References antisera against Mycoplasma bovis and Mycoplasma arginini were obtained from National Institute of Allergy and Infectious Diseases, Bethesda, Maryland, U.S.A.

RESULTS

Incidence of clinical and subclinical mastitis among investigated dairy cows was 13.87% (276 out of 1990) and 29.94% (569 out of 1990) whereas this incidence in dairy buffaloes was 16.27% (49 out of 301) and 34.55% (104 out of 301) respectively (Table 1 & 2).

INCIDENCE OF MYCOPLASMA MASTITIS

Two hundred and seventy six milk samples were collected from 276 clinical mastitic cows. Out of these forty nine cows were proved to be infected with Mycoplasma (17.75%), where eighty three isolates were recovered. Forty seven out of eighty three isolates (56.63%) were digitonin sensitive, did not ferment glucose or split arginine and inhibited by Mycoplasma bovis antiserum and the remian thirty six isolates (43.37%) were digitonin sensetive, did not ferment glucose but split arginine and inhibited by Mycoplasma arginini antiserum Table 1.

In dairy buffaloes, one out of forty nine clinical mastitic buffaloes (2.04%) was proved to be infected with Mycoplasma, where eight isolates were recovered. Four out of eight isolates were Mycoplasma bovis and the other four isolates were Mycoplasma arginini. Table 2.

Most of the infected animals yielded white yellowish coloured milk with arget clots which settled out leaving a colourless supernatant fluid and the mammary tissues were suffered from fibrosis.

No Mycoplasma could be detected from normal or subclinical mastitic milk of dairy cows and buffaloes.

DISCUSSION

It is evident from Table 1 & 2 the incidence of clinical and subclinical mastitis was 13.87% and 29.94% in cows meanwhile this incidence in buffaloes was 16.27% and 34.55% respectively. Such results are slightly higher than those of MOUSTAFA (1979). Higher incidence of subclinical mastitis in buffaloes and cows was recorded by NOORI and TAURO (1979) and AHMED (1981) and lower incidence was recorded by SINOUSSI, et al. (1975). Concerning the variation in the incidence of mastitis in cows and buffaloes as shown by the results of this study and those obtained by other investigations in different areas all-over the world; it is concluded that the incidence of this disease depend upon many factors including breeding system, hygienic measures and sanitation during milking and immunological state and rate of exposure of such animals to pathogenic organisms as well as other factors which are still in need of further investigations. Failure of some mastitic cows to antimastitic therapy, let us to take attention for studing the Mycoplasma mastitis. It was found that the incidence of Mycoplasma mastitis in cows ranged from 4.28% to 29.27% Table 1.

This results agreed with ANON (1979) and EISSA (1989). Highest incidence was recorded in Egypt by EL-EBEEDY, et al. (1985) and EISSA (1986); such higher incidence is due to severe outbreak of Mycoplasma mastitis in dairy Friesian herd occurred in Shobra Shehab and El-Kanater El-Khairia (Kalioubia governorate) farms.

Similar studies were carried out to investigate the Mycoplasma mastitis in dairy buffaloes. The incidence of Mycoplasma mastitis in buffaloes was 2.04% (Table 2). This results is lower than result previously obtained by PALE, et al. (1984) in India. Isolation of Mycoplasma bovis and Mycoplasma arginini from clinical mastitic milk of buffaloes appear to be the first record in Egypt.

The affected animals had a typical signs of Mycoplasma mastitis in that mastitis was severe with characteristic appearance of the milk secretion and did not respond to antimastitic drugs. This observations are similar to those previously obtained by BICKNELL, et al. (1983); EISSA (1986) and AHMED (1987).

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Tab. No. 1 : Incidence of Mycoplasma mastitis in 7 dairy Friesian herds .

Herds	No. of examined cows	clinical mastitic cows		No.of infected cows with mycoplasma		No. of isolated strain	M. Bovi.		M. arginini		Subclinical mastitic cows	
		No.	%	No.	%		No.	%	No.	%	No.	%
1	250	32	12.80	2	6.25	2	-	-	2	100.0	70	28.00
2	200	23	11.50	1	4.38	1	4	100.0	-	-	59	29.50
3	230	28	12.17	0	0.00	-	-	-	-	-	74	32.17
4	600	71	11.83	13	18.31	14	13	92.9	1	7.1	181	30.17
5	260	39	15.00	11	28.21	22	11	50.0	11	50.0	76	29.23
6	210	42	20.00	10	23.81	20	10	50.0	10	50.0	69	32.86
7	240	41	17.08	12	29.27	24	12	50.0	12	50.0	67	27.92
Total	1990	276	13.87	49	17.75	83	47	56.63	36	43.37	596	29.94

N.B. From 276 clinical mastitic cows, 49 cows infected with Mycoplasma,where 83 strains belonged to two different species were isolated, more than one strain was isolated from the same animal.

Table No. 2 Incidence of Mycoplasma mastitis in dairy buffaloes.

Groups	No. of examined buffaloes	clinical mastitic buffaloes		No. of infected buffaloes with mycoplasma		No. of isolated strain	M. bovis		M. arginini		subclinical mastitic buffaloes	
		No.	%	No.	%		No.	%	No.	%	No.	%
A	53	8	15.09	0	0.00	0	-	-	-	-	19	35.85
B	150	31	20.67	1	3.23	8	4	50.00	4	50.00	58	38.67
C	25	1	4.00	0	0.00	0	-	-	-	-	7	28.00
D	73	9	12.32	0	0.00	0	-	-	-	-	20	27.40
Total	301	49	16.27	1	2.04	8	4	50.00	4	50.00	104	34.55

N.B. From 49 clinical mastitic buffaloes,one buffaloes infected with Mycoplasma,where 8 strains belonged two different species were isolated (two different strains were isolated from the same quarter) .