PREVALENCE OF MASTITIS AND ANTIBIOTIC SENSITIVITY OF BACTERIAL ISOLATES RECOVERED FROM NILI-RAVI BUFFALOES

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ABSTRACT

Mastitis is one of the most costly diseases of dairy animals. Bacteria constitute the most common etiological agents of mastitis. The present study was designed to determine the prevalence of mastitis in buffaloes and to determine the susceptibility to various antibiotics. Milk samples collected from buffaloes maintained at Livestock Experimental Station Bhunikey were subjected to screening by using Surf Field Mastitis Test. The samples found positive were cultured on culture media such as Blood agar, MacConkey's agar, Staphylococcus medium No. 110 and Nutrient agar. The isolated organisms were identified and subjected to 8 commonly used antibiotics for determination of antibiotic sensitivity during period of 6 months (Jan-June, 2007) Eight hundreds milk samples from buffaloes were tested for mastitis out of which 75 (9.32%) were found positive. *Staphylococcus aurous* was the most frequently isolated pathogen (44%) followed by *Streptococcus agalactiae* (22%), E.coli (16%) bacillus spp. (4%) and mixed growth (14%). Norfloxacin, Gentamycine and Choramphenocol were found most effective drugs among the 8 antibiotics tested in vitro.

Key words- Surf field mastitis test, Nili-Ravi buffalo, antibiogram, *staphylococcus aureus*

INTRODUCTION

Mastitis is an inflammation of udder regardless of the cause. It is the most important and costly disease of dairy cattle. Field Surveys of major livestock disease in Pakistan have indicated that it is one of the most important health hazards in the country (Cady *et al.*, 1983). It also poses the risk for transmission of some major zoonotic diseases like tuberculosis, leptospirosis and brucellosis (Radostits *et al.*, 1994). Mastitis represents a serious problem to be considered due to the economic losses for which it is responsible. According to Ratafia (1987), world wide annual losses caused by this disease were nearly 35 billion US dollars. The losses due to mastitis might be higher in Pakistan because the mastitis prevention practices like teat dipping and dry period antibiotic therapy are not in practice (Arshad, 1999). Buffaloes have been reported to be less susceptible to mastitis than cattle (Thapa and Kaphle, 2002). Subclinical mastitis is 3 to 4 times more common than clinical mastitis and causes great losses in the dairy herds (Jasper *et al.*, 1982). The present study was designed with the objectives: to determine prevalence of mastitis by Surf Field Mastitis Test in Nili- Ravi buffaloes; to isolate the bacterial organisms from mastitis positive milk samples and to determine antibiotic sensitivity of the isolates to the commonly used antibiotics.

MATERIALS AND METHODS

During the period of six months (Jan, 2007 to June, 2007), a total of 800 milk samples of buffaloes maintained at Livestock Experimental Station Bhunikey, Pattoki (Punjab, Pakistan) were aseptically collected to determin the prevalence of mastitis based on Surf Field Mastitis Test (Muhammad *et al.*, 1995). Fifty positive milk samples out of 75 samples cultured on media such as Blood agar, Macconkey's agar, Staphylococcus medium no. 110 and nutrient agar. The inoculated plates were incubated aerobically at 37^{o} C for 24-48 hours. The bacterial isolates were identified on the basis of their cultural, morphological characteristics (Hargital *et al*., 1992). All the bacterial isolates were tested *invitro* for their sensitivity to 8 different antibiotics commonly used in veterinary practices. These included Penicillin, Streptomycin, Norfloxacine, Gentamycine, Kanamycine, Amoxicillin, Chlorampenicol and Sulphamethxazole.

RESULTS AND DISCUSSION

Out of 800 milk samples from buffaloes maintained at Livestock Experimental Station Bhunikey Pattoki, 75 were found positive for mastitis. The overall prevalence of mastitis was 9.32% (Table–1). The month wise prevalence of mastitis ranged from 5.67 to 13.74% showing the occurrence of the mastitis varying in different months. These findings are not inline with those reported by Hussain *et al.*, (1984) who recorded 23.5 to 34.5% mastitis cases in milking cows but our findings are in line with those of Ikhwan *et al*., (1989) who reported overall occurrence of mastitis in buffaloes as 9.35%. The major pathogens isolated from milk samples were Staphylococcus aureus 22 (44%) followed by Streptococcus agalactiae (22%), E.coli (16%) bacillus spp. (4%) and mixed growth (14%). Similar results were

reported by Memon *et al*. (1999) who observed that major pathogenic organisms in mastitis were Staphylococcus aureus (38%) followed by Streptococcus agalactiae (13%), E.coli (11%) and Klebsiella pneumoniae (11%). Bhalerao *et al.,* (2000) noted that major pathogenic organisms were Staphylococcus aureus (54.55%) following by the streptococci (36.36%) E.coli (4.55%) and Klebsiella (2.27%)

Table -1 Surf Field Month – wise prevalence of mastitis in Nili-Ravi buffaloes

Month	Total No. of samples Tested	No. of samples Positive	% Positive
January	141	8	5.67
February	147	16	10.88
March	144	14	9.72
April	131	18	13.74
May	130	9	6.92
June	111	10	9.00
Total	**800**	**75**	**9.321**

The antibiotic sensitivity of different drugs used against different isolates obtained during the study period showed that Norfloxacine, Gentamycine and Chloramphenical were found most effective drugs amongst 8 antibiotics tested *in vitro* were as Amoxicillin, Kanamycine, Sulphamethaxazole, Streptomycin, and Penicillin were less effective against these isolates (Table-2)

Table-:2. Antibiotic Sensitivity against Isolates recovered from mastitis milk samples of Nili-Ravi buffaloes.

Name of Antibitiotics	No of Isolates Sensitive	% age Sensitivity
Norfloxacine	20	40
Gentamycine	12	24
Chloramphenicol	8	16
Amoxicillin	4	8
Kanamycin	2	4
Sulphamethaxazole	2	4
Streptomycin	1	2
Penicillin	1	2

It was concluded from the present study that *Stapholococcus* aureus was the major pathogen responsible for mastitis and Norfloxacine was most effective drug under in vitro condition against the isolated pathogens

REFERENCES

Arshad, G. M. (1999). A population based active disease surveillance and drug trials of mastitis in cattle and buffaloes of District Sargodha. M.Sc. Thesis, Deptt: Vet. Clinical Medicine and Surgery, Univ. Agri., Faisalabad, Pakistan.

Bhaperao, D. P., S. Jagaddish, D.V. Keskar, A. Dangore, and L. K. Sharma (2000). Antibiogram and treatment of bovine subclinical mastitis. Indian Vet. J., 77: 244-246.

Cady, R. A., S. K. Shah, E. C. Schermerhorn and R. E Mc Dowell (1983). Factors affecting performance of Nili-Ravi buffalo in Pakistan., J. Dairy Sci., 66: 578-586

Hargital, C., K. Egyhaze, and G. Markus (1992). Trends of changes in the antibiotic sensitivity of udder pathogenic bacteria. Allatorvosok Lapja, 47: 429-432

Hussain, M., N. Khalid and I. Naeem (1984). Sub-Clinical mastitis in cows and buffaloes, identification and drug sensitivity of causative organisms. Pakistan Vet. J., 4: 161-164.

Ikhwan, K., M. Shah, M. Anwar, S. Rehman, M. Hafeez and M.B. Qureshi (1984). To detect the evidence of mastitis in cows and buffaloes and to study the anti-biogram (In vitro) of causative organisms. Proc, 2nd Inter Provincial Seminar on Animal Health and Production. Organized by Pakistan Vet. Med. Assoc. Peshawar pp.27-32.

Jasper, D. E., J. S. Mc. Donald, R. D. Mochrie, W. N. Philpot, R. V. Farm worth, and S. B Spehner (1982). Bovine mastitis research needs funding and sources of support. In: Proceeding of 21st Annual Meeting, National Mastitis Council Inc., Louisville, Kentucky, USA.pp: 182-193.

Memon, M. I., K.B. Mirbahar, M.R. Memon, N. Akhtar, S.A. Soomoro and P. Dewani (1999). A Study on the etiology of subclinical mastitis in buffaloes. Pakistan J. Agri., Agri. Eng., Vet. Sci., 15:34-36.

Muhammad, G., M. Athar, A. Shakoor, M. Z. Khan, Fazal-ul-Rehaman and M. T. Ahmad (1995). Surf Field Mastitis test. An in expensive new tool for evaluation of Wholesomeness of fresh milk Pakistan. J. Food Sci., 5:91-93.

Radostits, O. M., D. C. Blood and C.C. Gay (1994). Veterinary Medicine. 8th Ed. Bailliere Tindall, Landon PP 563-613.

Ratafia, M. (1987). Worldwide opportunities genetically engineered vaccines. Bio-Technology (New York), 5:1154.

Thapa, B. B. and K. Kaphle (2002). Selecting different drug combinations for control of Bovine clinical mastitis. J. Anim. Vet. Adv., 1: 18-21.