

PREVALENCE OF MASTITIS IN NILI RAVI BUFFALO HERD AT LIVESTOCK EXPERIMENT STATION BHUNIKEY, PATTOKI

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ABSTRACT: Mastitis is one of the major and keen parameter for quality and quantity of milk production. The recent study was conducted to estimate the occurrence rate of mastitis in four different seasons of the year and its therapeutic cure in Livestock Experiment Station Nili Ravi Bhunikey. For this purpose, the total of 1188 milk samples were screened for mastitis through California Mastitis Test. Out of total 1188 milk samples, the prevalence rate of mastitis was 9.7% (27/279) in winter, 14% (40/286) in spring, 7.2% (23/320) in summer and 6% (18/303) in autumn respectively. An overall prevalence rate of mastitis was 9% (108/1188). The screened positive samples were subjected to culture on culture media. Seven antibiotics were selected for the fortitude of antibiotic sensitivity against the cultured organisms. Antibiotics used in current research were Gentamicin, Enrofloxacin, Amoxicillin, Norfloxacin, Tylosin, Oxytetracycline and Chloramphenicol. The efficacy of the different antibiotics was checked by the configuration of the zone of inhibition. The outcome showed that the incidence of mastitis was greater in spring and lower in autumn. From selected antibiotics, Enrofloxacin and Gentamycine have resulted in more effective against the cultured organism.

Keywords: *Antibiotic sensitivity, California Mastitis Test, Enrofloxacin, Gentamicin, Mastitis, Nili-Ravi buffalo.*

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INTRODUCTION

Milk is a wholesome diet. It contains all the essential nutrients required for proper growth and functioning of human body organs. Pakistan ranked 4th on milk production basis in the world. In Pakistan, buffalo milk is preferred by the consumer in comparison with cow milk as it contains higher fat percentage and nutritive value and personal preference as well. Nili Ravi Buffalo is the best milch animal and on the basis of production it is regarded as the black gold of Pakistan. About 67% of total milk production in Pakistan is of buffalo origin (Rehman et al.2017). In the country, the livestock density is small scaled. So high milk production from less number of animals is the main goal of the Livestock stakeholders. Several factors are responsible for the quality and quantity of milk. Among these factors the major factor is mastitis. It is a managerial issue having multifaceted reasons. It may lead to permanent, irreversible changes to the udder tissues resulting in greater economic losses by decreasing the milk production and increasing therapeutic burden. In Pakistan field surveys have stated that dairy animals are more often affected by mastitis in the country (Hussain et al., 2005). Buffaloes have been testified to be less susceptible to most important disease mastitis as compared to the cattle (Thapa and Kaphle, 2002). There are two mainly

and most commonly occurrence of mastitis that are categories *i.e.* subclinical and clinical. Changes in animals' body as well as milk drawn from the udder and abnormal changes in it are characterization of clinical mastitis, however, subclinical mastitis is characterized as most common herd problem because it constitutes a pool of infection which has transmitted disease from one animal to the other animal of the herd. There are 15-40 estimated cases of subclinical mastitis that are undetectable and each case of subclinical mastitis has a large impact on the production of milk. Parameters that are involved in origination of infection are either the unfavorable environment or infected udder. Mode of transmission and pathogens major source that leads mastitis are including unhygienic milking machine/milker's hand, teat cups, flies, infested lodgings and grubby udder, washing clothes, and surgical instruments. Moreover, parity, trauma to udder, injuries to teat and teat canal, damaged in sphincters of teat, teat skin lesions, the stage of lactation of animal, each mammary gland immunological status, greater contribution of contamination in the surroundings and management circumstances are the parameters to be determine which evaluate the level of mastitis prevalence (Radostits et al.,2000).The current study was conducted with the objectives: to evaluate the occurrence of mastitis during different seasons of the year by California Mastitis Test

in Nili- Ravi buffaloes; to culture the etiological agent from mastitis positive milk samples and to determine antibiotic sensitivity related to organism to the antibiotics that are commonly used.

MATERIALS AND METHODS

The duration of the study was one year (June 2020 to May 2021). The whole year was divided into 4 seasons i.e. summer (June to August), autumn (September to November), winter (Dec. to Feb.) and spring (March to May). A total of 1188 milk samples of buffaloes milk were aseptically collected and brought to Laboratory of Farm and Health Division, Buffalo Research Institute, District Pattoki (Punjab Pakistan) for screening by California Mastitis Test. The samples were shaken thoroughly to get the uniform dispersion of pathogens. Positive samples were cultured and subjected to antimicrobial susceptibility test by disc diffusion method. The sensitivity against seven different antibiotics commonly used in veterinary practice was determined on Mueller-Hinton agar as described by National Committee

for Clinical Laboratory Standards. These antibiotics included Gentamicin, Enrofloxacin, Amoxicillin, Norfloxacin, Tylosin, Oxytetracycline and Chloramphenicol respectively.

Statistical data analysis: The collected data as statistically analyzed by percentage simply using excel sheets.

RESULTS

Out of 1188 milk samples from the buffaloes maintained at Livestock Experiment Station, Bhunikey, 108 were found to be positive for mastitis. The general occurrence rate of mastitis was 9%. The seasonal incidence of mastitis was high in spring while lowest in autumn as depicted in table 1.

The culture sensitivity test during the study period specified that mastitis is extremely profound to Enrofloxacin and Gentamicin while less profound in descending order to Norfloxacin, Amoxycillin, Chloramphenicol, Tylosin and Oxytetracycline (Table-2).

Table 1: California Mastitis Test, Season-wise prevalence of mastitis in Nili-Ravi buffaloes.

Seasons	Total No. of samples Tested	No. of samples Positive	% Positive
Summer	320	23	7.1
Autumn	303	18	5.94
Winter	279	27	9.6
Spring	286	40	13.9
Total	1188	108	9.0

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

Name of Antibiotics	No of Culture Sensitivity samples	% age Sensitivity
Enrofloxacin	49	45.37
Gentamicin	35	32.40
Norfloxacin	9	8.33
Amoxycillin	6	5.55
Chloramphenicol	4	3.7
Tylosin	4	3.7
Oxytetracycline	1	0.92

DISCUSSION

In studying prevalence of mastitis, the current study findings are found in sequence with those described previously by Farooq et al., (2008) who reported overall incidence of mastitis in Buffalo as 9.32%. El.Nakery et.al. (2015) recounted the pervasiveness of mastitis as 5.9% in buffaloes which is less than the observed in current study. The seasonal occurrence rate of mastitis is utmost in spring and lowest in winter reported by Farooq et al., (2008) which is in line with the current study in highest incidence but not in line with the lowest

occurrence of mastitis. The culture sensitivity results of the current study are found in agreement with conclusions of Mustafa et al.(2007) and Sumathi et al.(2008) while disagreement with Giannechini et al.(2002), Ebrahimi et al., (2002) and Guerin et al.(2002) reported Gentamicin resistant. In India, K.N Prabhu et al. (2015) reported that the disease is highly sensitive to Chloramphenicol followed by Enrofloxacin, Gentamicin and resistant to Oxytetracyclines which are in contract with the current study outcomes while Gayatri et al. (2017) specified Gentamicin sensitive and Amoxycillin resistant, not in line completely with current study.

Conclusions: It is determined from the current study that occurrence rate of mastitis is greater in spring and lowest in autumn due to the reason that temperature is favorable for bacterial growth and Enrofloxacin and Gentamicin were the utmost operative drugs which can be used in conditions related to in vitro against the cultured mastitogens.

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