

Bacteriological Analysis of Cow Milk Sample Suspected of Being Affected with Sub-Clinical Mastitis

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Abstract-- Mastitis is usually caused by bacteria that invade the udder, multiply and produce toxins which are harmful to the mammary gland. It remains the most economically important disease of dairy industries around the world producing great economic loss to farmers. There are two forms of mastitis viz., clinical and sub-clinical forms. The present article reports the successful recovery of a clinical case of mastitis in dairy cattle by following the proper dose regimen and schedule of recommended antibiotics for treatment.

Keywords-- Antibiotics, Antibiogram, Mastitis.

I. INTRODUCTION

Mastitis the chronic inflammation of the mammary gland of cattle and can have infectious and non-infectious etiology. It is characterized by physical, chemical and usually bacteriological changes in the milk and pathological changes in the glandular tissue of the udder and affects quality and quantity of milk. The indiscriminate and injudicious administration of antibiotics and irrational treatment of bovine mastitis with different antibiotics have invited serious complications like multiple drug resistance. Till date different types of antibiotics have been tried against the pathogens in bovine mastitis with or without identification and drug sensitivity testing.^[1-5]

The present study was conducted to identify the etiology of clinical mastitis and the antibiotics/antibacterial drugs which show sensitivity against the various pathogenic agents.

II. MATERIALS AND METHODS

Four (4 No.) of milk samples were collected by hand stripping method in four separate sterile sample collection tubes from all the four affected quarters of the udder of a cross bred cattle exhibiting clinical symptoms of mastitis which was produced at the Teaching Veterinary Clinical Complex (T.V.C.C.) of the college. The collected milk sample was then forwarded to the Department of Veterinary Microbiology during the end of September, 2016 for bacteriological investigation and reporting.

The milk sample was examined bacteriologically^[6] for the colony characteristics by nutrient agar plate culturing. Bacterial staining was done by Gram's Method^[7]. The antibiotic sensitivity test was performed as per Kirby-Bauer antibiotic disc diffusion assay method on Mueller-

Hinton agar plates with certain modifications^[8-10] using antibiotic discs provided by the supplier (Titan Biotech Ltd., Bhiwadi, Rajasthan, India). The concentration of antibiotic in each filter paper disc was as per the specification of the manufacturer required for laboratory purpose. Incubation of the petridishes layered with the agar containing antibiotic discs was done at 37°C for 24 h in a B.O.D. incubator installed at the department.

III. RESULTS AND DISCUSSION

The overnight incubated nutrient broth culture of the tissue sample was subjected to spread plate culture on Nutrient agar and salt agar media plates. After incubation at 37°C for 24 h it revealed the presence of circular, convex, glistening colonies with full regular edges on the agar media. Grams' method of staining revealed Gram positive cocci shaped organisms arranged in the form of clusters or clumps when examined under the high power magnification of the compound microscope. The bacteria was bacteriologically determined to be grouped under *Staphylococcus* spp.^[6-10]

Antibiotic assay revealed the bacterial isolates to be highly sensitive to the antibiotics, Amoxicillin, Tetracycline, Ceftriaxone and Gentamicin with low degree of sensitivity to Ampicillin and Streptomycin. The degree of sensitivity was determined on the basis of zone of inhibition formed by the isolated bacteria after exposure to the particular antibiotics by incubation. The results obtained on cultural properties of the bacteria and its antibiotic disc diffusion assay revealed in the present study was in correlation with the findings of earlier investigators.^[11-16]

IV. CONCLUSION

The present study revealed the presence of *Staphylococcus* spp. responsible for causing sub-clinical mastitis in dairy cattle. The bacterial strain was found to be sensitive to broad spectrum antibiotics which was reported and recommended to the T.V.C.C. for their administration in divided doses on alternate daily intervals in mixed preparations.

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