

Identification of Common Pathogenic Bacteria and Suitable Antibiotics for Treatment of Bovine Mastitis in Badulla District

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Mastitis is a common problem in dairy farms which is caused by multiple pathogens. Ad hoc use of antibiotics can lead to the development of antibiotic resistance in common mastitis-causing bacteria. Identification of common pathogens and their resistance to antibiotics is important for future mastitis treatment plans. The present study was conducted to identify the prevalence of different mastitis-causing bacteria and antibiotic sensitivity of bacteria isolated from milk samples of dairy cows with mastitis in the Badulla district. The study considered milk samples received by Veterinary Investigation Centre, Badulla. A total of 55 milk samples from lactating cows were collected and California Mastitis Test (CMT) was used to detect the severity of mastitis. Milk samples were collected from all four quarters of affected cows. Bacteria in CMT positive milk were cultured and identified using colony morphology, Gram staining, and biochemical tests including catalase, urease, citrate, Triple Sugar Iron Agar, Sulfide Indole Motility test, etc. Sensitivities of the isolates were tested against five antibiotics; Amoxicillin, Cephalexin, Enrofloxacin, Gentamycin, and Neomycin using Kirby-Bauer method. Statistical analysis was done by one-way ANOVA. The pure and mixed bacterial infection in total mastitis cases were 90% and 10%, respectively. Hindquarters (55%) were mainly affected than the forequarters (45%). There is no significant difference between the association of mastitis severity and the affected quarter ($p>0.05$). The prevalence of mastitis is more common in 5 to 7 years of age. The prevalence of *Staphylococcus* spp. was high (72%) followed by *Escherichia coli* (6%), *Klebsiella* spp.(6%), *Streptococcus* spp.(4%), *Pasteurella* spp.(4%) and *Bacillus* spp. (4%). Bacterial isolates were most sensitive to Enrofloxacin and Gentamycin. Around 75% of the isolates were resistant to one or more antibiotics. In conclusion, *Staphylococcus* is the most predominant pathogenic bacteria present in mastitis milk and, Enrofloxacin and Gentamycin are the most suitable antibiotics for treatment of bovine mastitis in Badulla district.

Keywords: Bacteria, Mastitis, Antibiotic Sensitivity