

ANTIMICROBIAL RESISTANCE AND PCR DETECTION OF *TET* GENE IN BACTERIA FROM BOVINE SUB CLINICAL MASTITIS: CASES REPORTED IN SOUTHERN PROVINCE IN SRI LANKA

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Bovine mastitis is an economically important disease worldwide. It has two forms namely clinical and sub clinical, and mainly treated using antimicrobials. Sub clinical mastitis is responsible for 60-70% of total financial losses of mastitis. Identifying causative agents of sub clinical mastitis, assessing their antimicrobial resistance and detecting resistant genes are necessary to overcome current treatment failures. Therefore, antimicrobial resistance pattern and prevalence of a selected resistant gene among sub clinical mastitis causing bacteria (n=23) were determined. Resistance to tetracycline (TE 30 mcg), ampicillin (AMP 25 mcg), amoxicillin/ clavulanic acid (AMC 30 mcg), gentamicin (GEN 30 mcg) and enrofloxacin (EX 5 mcg) was examined as per CLSI guidelines-2015 using Kirby Bauer Disk Diffusion Method. Considering the high level of phenotypic resistance to tetracycline, detection of *TetA* gene encoding resistance to tetracycline was done by PCR technique using specific primers with the sequence of F-GGTTCACCTCGAACGACGTCA and R-CTGTCCACAAGTTGCATGA. Staphylococci (12) and coliforms (11) including *Escherichia coli* (4) were identified. Out of 23 bacteria, 15, 14, 11, 4 and 2 were resistant to TE, AMP, AMC, GEN and EX respectively. Also resistance to TE, AMP and AMC was significantly higher (P<0.05) than to GEN and EX. *TetA* gene was positive only in 11 isolates while phenotypically resistant to Tetracycline. Absence of *TetA* in tetracycline resistant isolates (4) indicates existence of other resistant mechanisms. None of tetracycline susceptible isolates carried *TetA* gene. Emerging antimicrobial resistance and presence of *TetA* gene pose a risk of poor response to antimicrobials in mastitic cows while raising the requirement of more effective therapeutic regimes in near future. Thus monitoring of antimicrobial resistance is recommended for successful mastitis control.

Key words: Mastitis, bacteria, PCR technique, antimicrobial resistance