

ANTIMICROBIAL RESISTANCE OF PATHOGENS FROM EWES SUBCLINICAL MASTITIS

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Abstract. Mastitis is a major health problem in dairy sheep flocks worldwide. It is associated with reduced productivity, low weaning weights, lamb mortality and the culling of affected ewes.

Subclinical mastitis is characterised by quantitative and qualitative changes to milk, mainly through increased numbers of somatic cells, and is frequently caused by the introduction and multiplication of pathogenic bacteria in the mammary glands. Causative bacteria include coagulase negative staphylococci, *Staphylococcus aureus*, *Streptococcus* spp., *Escherichia coli* and *Pseudomonas aeruginosa*. The aim of this study was to identify bacterial flora of subclinical mastitis and to determine antimicrobial resistance.

The study was carried out in 3 private Lithuanian ewes' farms. California mastitis test (CMT) was performed on 84 milk samples. For bacteriological investigation, ewes with CMT positive udder halves were sampled (n=23). Identification of common bacterial species isolated from all subclinical mastitis cases was done depending on morphological, cultural characterisation and biochemical tests. Antimicrobial susceptibility was determined by a disc diffusion method. Statistically significant associations were analysed by the Student test.

Subclinical mastitis and positive CMT results were detected in 47.6% of ewes and in 57.5% of udder halves. Bacteria were isolated from 91.3% of milk samples. The most prevalent bacterial species was *S. aureus* (38.1%) followed by *Bacillus* spp. (33.3%), *Escherichia coli* (9.5%), *Actinomyces* spp. (9.5%), *Serratia* spp. (4.8%) and *Pseudomonas aeruginosa* (4.8%). There was no statistically significant difference in the prevalence of bacteria isolates in milk samples between different productivity sheep breeds ($P > 0.05$). The results of antimicrobial susceptibility tests for β -lactamase positive *Staphylococcus aureus* isolates showed a high rate of resistance to ampicillin, cefalotin, cephalixin, gentamicin, streptomycin, erythromycin, oxytetracycline and sulphonamide with a percentage from 50.0 to 100.0. On the other hand, these isolates showed high sensitivity to amoxicillin/clavulanic acid (100.0%), methicillin (100.0%), cloxacillin (100.0%) and oxacillin (100.0%). The most effective antimicrobial agents against β -lactamase negative *S. aureus* isolates were methicillin (100.0%), cloxacillin (100.0%), cefalotin (100.0%), gentamicin (83.3%), erythromycin (83.3%), amoxicillin/clavulanic acid (66.6%) and streptomycin (66.6%). A high resistance rate to cephalixin, streptomycin, erythromycin, oxytetracycline and lincomycin was found in *E. coli* isolates.

Keywords: ewes, subclinical mastitis, microorganisms, antimicrobial susceptibility