

PREVALENCE OF GRAM POSITIVE BACTERIA IN COW MASTITIS AND THEIR SUSCEPTIBILITY TO BETA-LACTAM ANTIBIOTICS

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Summary. The aim of this study was to investigate the prevalence of gram-positive bacteria causing cow mastitis in cows and determine their susceptibility to beta-lactam antibiotics. Eight hundred and seventy one isolated gram-positive bacterial strains belonged to *Staphylococcus* (n=506), *Streptococcus* (n=196) and *Enterococcus* (n=169) genera from sub-clinical and clinical cases of bovine mastitis in Lithuania were investigated. The most common causative agents of udder disease included: *S. epidermidis* (n=176), *S. aureus* (n=166), *S. agalactiae* (n=128), and *E. hirae/durans* complex (n=136). Isolates were analysed for their susceptibility to several beta-lactam antimicrobial agents: penicillin, ampicillin, amoxicillin, cephalothin, cephalexin, amoxicillin + clavulanate. The susceptibility patterns were studied by Agar Disk Diffusion method (ADDM). *S. aureus* showed the highest level of resistance to amoxicillin (81.7%), penicillin (81.6%) and ampicillin (83.2 %). The corresponding values for coagulase-negative staphylococci (CNS) strains were 59.5 %, 52.0 % and 50.8 % against penicillin, ampicillin and amoxicillin, respectively. *Streptococcus* spp. strains mostly were resistant to amoxicillin (31.6%), *Enterococcus* spp.– to penicillin (28.3 %), ampicillin (21.8 %), amoxicillin (37.8 %) and amoxicillin + clavulanate (31.7 %). The susceptibility of our tested mastitis pathogens to ampicillin and penicillin highly correlated $r=0.87$. In comparison with other antibiotics amoxicillin and clavulanic acid combination was the most effective ($p<0.05$) *in vitro* against all tested gram-positive bacteria. However, *S. aureus* strains in 41.5 % of cases demonstrated resistance to this combination.

Keywords: *Staphylococcus*, *Streptococcus*, *Enterococcus*, bovine mastitis, antimicrobial resistance, beta-lactam antibiotics.