COAGULASE-NEGATIVE STAPHYLOCOCCUS SPECIES ISOLATED FROM BOVINE MILK: FREQUENCY OF ISOLATION AND ANTIMICROBIAL RESISTANCE IN ARGENTINE DAIRY HERDS

Silvana Andrea Dieser¹, Elina Reinoso¹, Claudia Vissio², Alejandro Jose Larriestra², Cesar Bonetto¹, Claudia Gabriela Raspanti¹

¹Microbiología e Inmunología, Universidad Nacional de Río Cuarto, ²Patología Animal, Universidad Nacional de Río Cuarto, Río Cuarto, Argentina

MASTITIS is one of the most important diseases in dairy cattle, resulting in significant losses. Control programs work well for control of intramammary infections (IMI) with contagious major pathogens. However, these programs seem to be less effective to reduce prevalence of coagulase-negative Staphylococcus (CNS) IMI. As a result, CNS has become relatively more important. To assess the pathogenic significance of CNS species and to develop species-specific management practices, accurate species identification is needed. The aims of this study were to determine frequency of isolation of CNS species from milk of dairy cows in selected herds of the central region of Argentina. A further objective was to determine CNS susceptibility to antimicrobials commonly used for MASTITIS therapy. Composite milk samples were obtained from 2296 cows, selected systematically at random from 51 dairy herds for March to September of 2007. Bacterial identification was done according to NMC. Coagulase-negative Staphylococcus was classified to the species level by restriction fragment length polymorphism (RFLP) analysis of a partial groEL gene sequence. Susceptibility of CNS against 11 antimicrobial agents was tested by the agar disk diffusion method according to NCCLS guidelines. A total of (79.5%) of the samples (1826 out of 2296) were considered bacteriologically positive. Among the samples with bacterial growth, CNS was the most commonly isolated bacterial group (n=944; 51.7%). A total of 110 CNS were identified to the species level which represents approximately 11.6% of all CNS isolated from these farms. The most frequently isolated CNS species was Staphylococcus chromogenes (34%) followed by Staphylococcus haemolyticus (31%) and Staphylococcus xylosus (14%). Sixty-four strains were tested for antimicrobial susceptibility. Fifty percent of the strains tested were resistant to one or more antimicrobial agents often used in the control of the disease. Resistance to penicillin and ampicillin were observed in S. chromogenes (20%) and S. haemolyticus (48%). The present study is the first report which identifies species SCN through RFLP analysis and their resistance against antimicrobial agents isolated from bovine milk in the central region of Argentine. These results will be useful for advancing knowledge of the role of the most frequently isolated CNS species in bovine MASTITIS.