

Activity of selected antimicrobial agents against strains of *E. coli* and *Klebsiella* spp. isolated from bovine intramammary infections. John R. Wenz¹, Sarah A. Salmon², Edward J. Robb², Franklyn B. Garry¹ and George M. Barrington³, Colorado State University, Integrated Livestock Management, Fort Collins, CO, USA¹ and Pharmacia & Upjohn Animal Health, Worldwide Product Development, Kalamazoo, MI, USA², Washington State University, Veterinary Clinical Science, Pullman, WA, USA³.

Antimicrobial treatment of cows with coliform mastitis is controversial but commonly practiced in the US. Recent data has shown 42 percent of cows with severe coliform mastitis were bacteremic with a gram-negative organism. This suggests that parenteral antimicrobial therapy may be warranted. Most antimicrobial regimens employed for this purpose in the US are not labeled by the FDA for use in lactating dairy cows. Information about the antimicrobial susceptibility of clinical coliform isolates would be useful.

Minimum inhibitory concentrations (MIC, micrograms/ml) of selected antimicrobial agents were determined using a commercially available microdilution panel for 101 *E. coli* and 13 *Klebsiella* spp isolates from bovine intramammary infections. The MIC₉₀ (MIC that inhibits 90% of strains tested) for *E. coli* were as follows: ceftiofur = 0.5, cefquinome = 0.06, ampicillin = 32, gentamicin = 2.0, neomycin = 4.0, spectinomycin = 16, sulfamethoxazole = 512 and trimethoprim plus sulfamethoxazole = 0.12. The MIC₉₀ for *Klebsiella* spp were the same except gentamicin = 1.0.

The results of this study indicate ceftiofur, cefquinome, trimethoprim plus sulfamethoxazole and gentamicin were highly active against *E. coli* and *Klebsiella* strains from bovine IMI. Of these compounds, only ceftiofur is labeled for use in lactating dairy cattle and available in the US. Trimethoprim plus sulfamethoxazole use in lactating dairy cattle is prohibited and gentamicin use is discouraged because of prolonged residues in renal tissue and reports of lack of efficacy in treatment of coliform mastitis. Using current approved interpretive criteria for ceftiofur against bovine respiratory disease pathogens, 97.5% of the gram-negative bacteria tested would be susceptible to ceftiofur.