

Evaluation of effects of *Mycoplasma mastitis* on milk composition in dairy cattle from South Australia

Abd Al-Bar Al-Farha^{1,2}, Farhid Hemmatzadeh¹, Manouchehr Khazandi¹, Andrew Hoare³ & Kiro Petrovski^{1*}

¹ School of Animal and Veterinary Sciences, The University of Adelaide, Roseworthy, South Australia, 5371, Australia

² Mosul Technical institute, Northern Technical University, Mosul, Iraq

³ South East Vets, Mt Gambier, South Australia, 5290, Australia.

*Author for correspondence. Email: kiro.petrovski@adelaide.edu.au

Summary

The aim of this study was to evaluate the effects of *Mycoplasma* infection on the quality and composition of bovine milk compared to other mastitis pathogens. A total of 288 milk samples at individual cow level were collected from a single dairy farm from South Australia. At the time of this investigation, the farm, with approximately 2,500 dairy cows, had a history of chronic mastitis with poor response to antimicrobials and an increasing number of cows with high somatic cell count (SCC). Milk samples were aliquoted into four different tubes for microbial culture, conventional *Mycoplasma* culture, molecular detection using species specific primers and freezing. Forty-eight selected *Mycoplasma* PCR positive samples were confirmed by 16S rRNA sequencing. A database of individual cow details, including yield production parameters (volume, total solids, fat and protein percentage) and SCC, was accessed using existing information of herd testing. Cows were grouped as: positive for *Mycoplasma* spp. detection, other non-*Mycoplasma* pathogens detected and healthy cows. PCR results showed a high prevalence of mycoplasmas (79.9%), including *Acholeplasma laidlawii* (10.8%), *M. bovis* (6.2%), *M. bovirhinis* (5.6%), *M. arginini* (2%), and 52.1% of cows showed positive co-infections by above-mentioned *Mycoplasma* and *Acholeplasma* species. Microbial culture for all milk samples showed predominance of coagulase-negative staphylococci (12.2%), followed by coagulase-positive staphylococci (2.4%), *Streptococcus* spp. (2.1%), *Enterococcus* spp. (1.7%), *E. coli* (1.4%), *Klebsiella* spp. (0.4%). *Mycoplasma* co-infection can cause significant increases in SCC and protein percentage, and significant decreases in milk yield, fat percentage and total milk solids similar to other mastitis pathogens. In contrast, changes caused by various *Mycoplasma* species were non-significant. Hence, *Mycoplasma* mastitis has on-farm economic consequences as do other mastitis causing pathogens.