

Abstract

Mastitis remains one of the most serious health and economic challenges in dairy herds, and global efforts to reduce the use of antibiotics have increased interest in effective non-antibiotic intramammary therapies. These publications present a collection of findings from three field studies evaluating natural bioactive compounds—pectin, morin, and quercetin—as alternatives or adjuncts to conventional antimicrobial treatment. In the first pilot study, cows with mastitis were treated with 10% pectin or a licensed intramammary *antibiotic*. Both therapies led to comparable reductions in clinical severity and log₂-SCC within 48 hours, with similar bacteriological cure rates, pathogen profiles, and no adverse effects, confirming the safety and efficacy of pectin as an alternative to antibiotics. The second study assessed morin as a single active compound; 3% morin significantly reduced SCC and improved clinical outcomes in mastitis caused by *E. coli*, achieving efficacy comparable to antibiotics, whereas in *S. uberis* infections the response was slower and less pronounced. In the third experiment, Holstein–Friesian cows with moderate mastitis caused by *Escherichia coli* or *Streptococcus uberis* received an intramammary preparation containing pectin, morin, and quercetin (PMQ), a standard antibiotic, or phosphate buffer. Both PMQ and the antibiotic resulted in a significant reduction in somatic cell score (SCS) beginning at approximately 72 hours, accompanied by clinical improvement; no improvement was observed in the control group. Overall, the results indicate that pectin- and flavonoid-based formulations exhibit measurable anti-inflammatory and supportive therapeutic effects in the treatment of mastitis in cows. Their safety, lack of withdrawal period, and documented clinical benefits support their potential role as non-antibiotic alternatives that may contribute to the rational use of antibiotics in milk production.