

Milk cathelicidin and somatic cell counts in dairy goats along lactation

Vittorio Tedde¹, Valerio Bronzo², Giulia Maria Grazia Puggioni¹, Claudia Pollera², Antonio Casula², Paolo Moroni^{2,3}, Sergio Uzzau^{1,4}, and Maria Filippa Addis^{1,2*}

¹Porto Conte Ricerche, Alghero, Italy

²Università degli Studi di Milano, Dipartimento di Medicina Veterinaria, Milan, Italy

³Cornell University, Animal Health Diagnostic Center, Ithaca, NY, USA

⁴Università degli Studi di Sassari, Dipartimento di Scienze Biomediche, Sassari, Italy

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milk

*Correspondence: Maria Filippa Addis
Dipartimento di Medicina Veterinaria
Università degli Studi di Milano
Via Celoria 10
20133 Milano
Italy
Phone: +39-02-503-18076
FAX +41-02-503-1870
E-mail: filippa.addis@unimi.it

Summary

This research communication reports the evaluation of cathelicidin in dairy goat milk and describes its relationship with the somatic cell count (SCC) and microbial culture results. The SCC is the standard mastitis monitoring parameter, but in consideration of its limited performances in goats there is interest in evaluating alternative diagnostic tools. Cathelicidin is involved in innate immunity of the mammary gland, and a recently developed ELISA has shown a very good potential for mastitis detection in ewes and cows. In this work, half-udder milk samples were sampled bimonthly from a herd of 37 Alpine goats along an entire lactation and tested with the cathelicidin ELISA together with somatic cell counting and bacterial culture. As a result, cathelicidin and SCC showed a strong correlation ($r = 0.72$; $n = 360$ milk samples). Correlation was always higher in primiparous (0.80 , $n = 130$) than in multiparous goat samples (0.71 , $n = 230$). In addition, it was highest in mid-lactation ($r = 0.83$) and lowest in late lactation ($r = 0.61$). Both markers increased with time, but cathelicidin increased less than SCC. In addition, peaking in late lactation was lower for cathelicidin (5.05-fold increase) than for SCC (7.64-fold increase). Only 4.4% of samples (16) were positive to bacteriological culture, and all of them had coagulase-negative staphylococci (CNS). Of these, 13 were positive to the cathelicidin ELISA (81.25%).

In conclusion, the high correlation of cathelicidin with SCC in full lactation, its lower increase in late lactation, and the good sensitivity in detecting CNS-positive samples indicate a potential for subclinical mastitis monitoring in dairy goats and deserve further investigation.