

## **Influence of mastitis-causing pathogens on milk composition in Frieswal dairy cows**

Singh Raj Sukhbir<sup>1\*</sup>, Baljinder Kumar Bansal<sup>2</sup> and Dhiraj Kumar Gupta<sup>2</sup>

<sup>1</sup>Department of Teaching Veterinary Clinical Complex

<sup>2</sup>Department of Veterinary Medicine

College of Veterinary Science, Guru Angad Dev Veterinary and Animal Sciences University,  
Ludhiana, India

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\*Corresponding author: Raj Sukhbir Singh, rsbs\_66@rediffmail.com

## Abstract

Our objective was to investigate the association between mastitis-causing pathogens and milk composition. A total of 260 Frieswal dairy cows from 12 small-scaled dairy farms were selected randomly, and quarter foremilk samples (n = 1031) were analyzed for California mastitis test (CMT), microbial culture and milk composition. Data were analyzed using a general linear model. Thirty percent quarters were CMT positive. Culture results were classified into 4 groups: culture-negative (67.6%); minor pathogens (19%); contagious pathogens (5%); and environmental pathogens (8.4%). Milk composition varied significantly ( $P < 0.05$  to  $P < 0.001$ ) between culture-negative and culture-positive quarters. Among culture-positive quarters, considerable alterations in milk compositional parameters were noted due to contagious pathogens (*Staphylococcus aureus*) as compared with minor pathogens (coagulase negative staphylococci and *Corynebacterium* spp.) and environmental pathogens (*Streptococcus* spp., *Bacillus* spp., *Escherichia coli*, *Klebsiella* spp., and *Pseudomonas* spp.). Quarters infected with contagious pathogens were more associated with increased EC, and decreased lactose, TP, fat and SNF content. Quarters with CMT positive results were associated with reduced levels of lactose, TP and SNF, and higher levels of pH and EC ( $P < 0.001$ ). The effect of quarter position, parity and stage of lactation were also observed on some of the milk contents ( $P < 0.05$  to  $P < 0.01$ ). In conclusions, intramammary infections, particularly those caused by contagious pathogens, significantly deteriorate the milk composition; hence implementation of mastitis control programs, such as hygienic milking procedures and dry cow therapy, may be warranted on small scaled dairy farms for improvement of udder health and, therefore, milk quality in Frieswal dairy cows.