

Culture-Negative Mastitis

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Mastitis, the most common and expensive disease of dairy cows, continues to be a persistent problem in the dairy industry. Based on the outcome of laboratory analyses of clinical mastitis samples, treatment decisions can be made and management issues on a dairy herd with mastitis problems can be addressed and identified. Culture of milk samples of clinical mastitis cases is, therefore, important to determine the pathogens involved. Additionally, in prevalence studies and surveys, a misclassification of cases may occur if mastitis caused by certain pathogens more often results in negative cultures.

A recent study on the incidence of clinical mastitis in Canada revealed a high figure of 44% of culture-negative samples. With decreasing bulk milk SCC, the percentage of culture-negative clinical mastitis samples increases. It has been hypothesized that the highest proportion of culture-negative clinical mastitis cases is associated with *Escherichia coli*. Additionally, *Staphylococcus aureus* mastitis can result in a negative culture because of the frequently low concentration of bacteria in the milk. Lack of bacterial growth in mastitis milk could also be attributed to presence of anaerobes or *Mycoplasma* that do not grow on conventional culture media. Research in Finland using real-time PCR of 79 clinical mastitis samples with no growth in conventional culture, identified 43% samples as positive for at least one common bacterial pathogen.

To determine the causes of culture-negative mastitis, more specifically the bacterial pathogens, a minimum of 200 culture-negative clinical mastitis milk samples from the organic and conventional Canadian dairy herds will be used for the study. Identification of bacterial pathogens in these samples will be carried out by PCR assays to detect the presence of DNA from the causative bacterial pathogens.

Implications: Knowing more about the pathogens in culture-negative mastitis milk samples is important for the dairy farmers, veterinarians and extension specialists, as it provides a solid explanation to the occurrence of mastitis even though the milk sample is culture-negative. Providing information on the pathogens involved in culture-negative mastitis will motivate the farmers to submit such milk samples for identification of the etiological agents.