

# Evaluation of an Enzymatic Test for the Rapid Detection of *Staphylococcus aureus* in Milk

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*Staphylococcus aureus* is a contagious mastitis causing bacterium of cows. An enzymatic test for rapid detection of *S. aureus* in milk (Biovet) was evaluated in comparison with another rapid test (Hy-Mast, Upjohn), to standard bacteriological techniques including pre-culture enrichment in BHI (brain heart infusion) carried out in the clinical bacteriology laboratory of the College of Veterinary Medicine of the University of Montréal. A positive result for the presence of *S. aureus* was defined as the bacteriological identification of *S. aureus*. Sensitivities and specificities were computed using bacteriology as gold standard. The kappa values, indicating the agreement beyond chance between tests, was computed between the rapid tests and bacteriology results. A kappa value less than 0.5 is considered poor, between 0.5 and 0.7 is considered moderate, and greater than 0.7 is considered excellent. Cows from 11 herds were sampled based on high somatic cell count, positive CMT result, history of *S. aureus* infection and recent calving.

Out of 146 milk samples tested, 29 were positive for the presence of *S. aureus*. For the Biovet rapid test,

sensitivity was 82.8% and specificity was 93.1%. The kappa value was 0.731 indicating an excellent agreement with bacteriology results. The Hy-Mast test had a 93.1% sensitivity and 82.9% specificity when all *Staphylococcus*-like colonies (white colonies on intense yellow background) were considered as *S. aureus*, and 48.3% sensitivity and 94.0% specificity when only *S. aureus*-like colonies (big white compound colonies on intense yellow background) were considered as *S. aureus*. The kappa values for the Hy-Mast were 0.616 and 0.472 indicating a moderate to low agreement with bacteriology results. Overall, the percent correct classification was highest with the Biovet rapid test (91.1%) compared to the Hy-Mast test (84.9%).

The time necessary for completion of both rapid tests was comparable (Hy-Mast 24-36hrs; Biovet 26-40hrs) and significantly quicker than standard bacteriology results (72hrs). The advantages of the Biovet test were the ease of interpretation (appearance of a pink color, yes or no) to the bacteriology unexperienced eye and the excellent agreement with bacteriological results.