

## **Detection of Penicillin Binding Protein 2a (PBP2a) in *Staphylococcus aureus* Isolated from Milk Using Serological Assays**

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**ABSTRACT** A total 14 milk samples (7 unpasteurized and 7 pasteurized) were collected and analyzed for characters of *S. aureus*. Based on colonial morphology of the isolates all the samples were positive for the target organism (*S. aureus*). From these samples a total of 16 presumptive isolates from each sample were selected and the resulting 224 isolates were screened for the characters of *S. aureus* by subjecting them to preliminary (Gram staining and catalase test) identification tests. A large proportion 88.8 percent (199/224) were Gram-positive cocci that appeared in clusters and all these isolates were also catalase positive. In addition all these isolates (88.8 percent) were able to breakdown hydrogen peroxide due to the production of the catalase enzyme. When subjected to the MastStaph™ serological assay to confirm their identities a large proportion 59.9 percent (133/224) of the isolates were positively identified as *S. aureus*. All the 133 positively identified *S. aureus* isolates were subjected to another serological assay designed to detect the Penicillin Binding Protein 2a (PBP2a) that codes for the *mecA* gene in methicillin and oxacillin resistant isolates. Results indicated that about half 49.6 percent (66/133) of these *S. aureus* isolates were positive for the PBP2a protein and eventually the *mecA* gene and a large proportion 71.2% were isolated from milk obtained from commercial cattle in Molelwane. Despite the fact that all the unpasteurized milk samples were contaminated with *S. aureus* strains, a cause for concern was the fact that this pathogen was also detected in pasteurized milk obtained from some supermarkets in the area. Given that these milk products had not gone past their recommended shelf life, these results therefore indicated that milk products could serve as vehicles for the transmission of *S. aureus* to consumers in the area.