World Academy of Science, Engineering and Technology
International Journal of Biomedical and Biological Engineering
Vol:8, No:05, 2014

Phenotypical and Genotypical Assessment Techniques for Identification of Some Contagious Mastitis Pathogens

Authors : Ayman El Behiry, Rasha Nabil Zahran, Reda Tarabees, Eman Marzouk, Musaad Al-Dubaib

Abstract : Mastitis is one of the most economic disease affecting dairy cows worldwide. Its classic diagnosis using bacterial culture and biochemical findings is a difficult and prolonged method. In this research, using of matrix-assisted laser desorption/ionization time-of-flight mass spectrometry (MALDI-TOF MS) permitted identification of different microorganisms with high accuracy and rapidity (only 24 hours for microbial growth and analysis). During the application of MALDI-TOF MS, one hundred twenty strains of Staphylococcus and Streptococcus species isolated from milk of cows affected by clinical and subclinical mastitis were identified, and the results were compared with those obtained by traditional methods as API and VITEK 2 Systems. 37 of totality 39 strains (~95%) of Staphylococcus aureus (S. aureus) were exactly detected by MALDI TOF MS and then confirmed by a nuc-based PCR technique, whereas accurate identification was observed in 100% (50 isolates) of the coagulase negative staphylococci (CNS) and Streptococcus agalactiae (31 isolates). In brief, our results demonstrated that MALDI-TOF MS is a fast and truthful technique which has the capability to replace conventional identification of several bacterial strains usually isolated in clinical laboratories of microbiology.

Keywords : identification, mastitis pathogens, mass spectral, phenotypical
Conference Title : ICCMID 2014 : International Conference on Clinical Microbiology and Infectious Diseases
Conference Location : London, United Kingdom
Conference Dates : May 26-27, 2014