

**MATRIX-ASSISTED LASER DESORPTION IONIZATION–TIME OF FLIGHT  
MASS SPECTROMETRY BASED IDENTIFICATION OF COAGULASE  
NEGATIVE BACTERIA FROM HUMAN SPECIMENS.**

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**ABSTRACT**

Matrix-assisted laser desorption ionization–time of flight mass spectrometry (MALDI-TOF MS) is suitable for high-throughput and rapid diagnostics at low costs and can be considered an alternative for conventional biochemical and molecular identification systems in a conventional forensic and microbiological laboratory. This technology has been readily imbibed by researchers who have reported usage of MALDI-TOF MS for a number of purposes like, microbial identification and strain typing, detection of biological warfare agents, detection of water- and food-borne pathogens. In this study, we evaluated MALDI-TOF MS using 89 clinical isolates previously cultured from patient materials and identified by conventional biochemical techniques. Overall performance of MALDI-TOF MS was significantly better than conventional biochemical systems for correct species identification (95.3% and 79.3%, respectively) and produced fewer incorrect genus identifications (0.2% and 1.9%, respectively). Correct species identification by MALDI-TOF MS was observed in 62.9% of *Staphylococcus sciuri*, 13.5% of *Staphylococcus simulans*, 7.9% of *Staphylococcus haemolyticus*, 6.7% of *Staphylococcus gallinarum*, 5.6% of *Staphylococci cohnii*, 1.1% of *Staphylococcus arlettae*, 1.1% of *Staphylococcus lentus*, and 1.1% of *Staphylococcus piscifermentans*. Our result shows that MALDI-TOF MS had significantly better performance than conventional methods for species identification. We conclude that MALDI-TOF MS can be implemented easily for routine identification of organisms in a forensic biological and microbiological laboratory.

**Key Words:** MALDI-TOF MS, Coagulase Negative Bacteria, Identification, Nigeria.