

# Mass Spectrometry in Microbial Forensics

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**REFERENCE:** Ho Y-P, Reddy PM, Chen C-T, Lo AA-L: Mass spectrometry in microbial forensics; *Forensic Sci Rev* 21:25; 2009.

**ABSTRACT:** Mass spectrometry (MS) has become a powerful tool to identify microbial biomarkers. Rapid and reliable identification of microorganisms by MS without extensive sample pretreatment is now possible. An effective microbial forensics program requires accurate characterization of pathogens to indicate their presence. MS methods provide such capabilities for forensic analysis. MS methods currently utilized for microbial analyses are reviewed. Techniques including capillary electrophoresis, liquid chromatography, gas chromatography, and pyrolysis that are coupled to MS analysis are described. A brief introduction to the two advanced ionization techniques, electrospray ionization and matrix-assisted laser desorption/ionization, for MS is provided in this review. Methods based on characterization of biomarkers including proteins, DNA molecules, lipids, and other small molecules are reviewed.

**KEY WORDS:** Biomarkers, DNA, lipids, mass spectrometry, microbial forensics, pathogens, proteins.

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