APPLICATION OF MASS SPECTROSCOPIC TECHNIQUES TO FORENSIC AND ENVIRONMENTAL CHEMISTRY

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Mass Spectroscopic techniques have found an increasing number of applications in forensic and environmental investigations. This paper deals with the application of organic and inorganic mass spectroscopic techniques for the detection, identification and quantification of known and unknown 'contaminants' in environmental and forensic investigations.

Examples include:-

- the identification of organic pollutants in the aqueous environment by GCMS and GCMSMS.
- the extraction and quantification of licit and illicit drugs from post-mortem examinations of blood, urine, liver, injection sites and stomach content
  - including morphine, codeine, monoacetylmorphine by GCMS,
  - LSD in blood and urine by ImmunElute (Microgenics) extraction and analysis by GCMS and
  - Tetrahydrocannabinol and Carboxy-THC in bloods by Negative CI GCMS.
- the use of Inductively Coupled Plasma Mass Spectrometry to detect metal concentrations and multi-elemental fingerprinting for determining the similarity or difference between different samples.

Similarities and differences between the application of mass spectroscopic techniques to environmental and forensic investigations will be presented and ways of cross-fertilizing between the areas to mutual benefit will be discussed.