Abstract

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Detection of Biogenic Amines from soil samples using Field Asymmetrical Ion Mobility Sectrometry

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Abstract

Complex compounds that are released during the active stage of decomposition such as Volatile Organic Compounds (VOC's) can aid in estimating the time of death, especially in cases of homicide, missing persons and mass disasters. In this paper, a new equipment, Field Asymmetrical Ion Mobility Spectrometry (FAIMS) was used to identify and study these biogenic compounds. Field Asymmetrical Ion Mobility Spectrometry, a variation of the ion mobility spectrometry, is used to detect compounds at sensitivity as low as 10 ppb and with different proton affinities. Over 96 soil samples from three pig carcasses were collected and weighed into vials. These were analysed using FAIMS and compared to blank samples. Due to competitive ionisations, it was difficult to differentiate between cadaverine and putrescine; however, the peaks of the biogenic amines were distinctly different from the blank samples. The results showed that the differences between blank samples and those with biogenic amines were highly distinguishable. The discussion covers the outcomes of the experiment and the various problems faced as this study has not been conducted.

Biography

Nishelle Dsouza CEO of Securcube srl, an Italian digital forensics companyspecialized in call detail records analytics and cell site realcoverage surveys and mapping.Certified with EnCE, CCO-CCPA-CCME, Oxygen, XRY, hasbeen working forensic investigations since 2007.Registered at the Italian Courts as an Expert Witness, consulting for several Prosecutors' offices.His experience includes computer fraud; unauthorized access to computer systems; credit card cloning; violation of copyright; fraudulent bankruptcy; scams; document falsification; digital identity theft; stalking; murder; suicide; drug trafficking. Active in training Law Enforcement globally in digital investigative techniques, has published articles sharing experiences in criminal investigations and court proceedings.