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Determining the potential of microbial community dynamics to identify decomposition locales

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The adoption of protocols and procedures from other research areas has advanced crime scene expertise and forensic intelligence. In parallel, the current molecular microbiology tool-kit consists of cutting edge techniques that were developed or designed for medical and genetics applications. As a result, 'microbioforensics' or 'microbial forensics' has emerged to address the interface of forensics and microbial ecology, with tremendous potential to benefit researchers and practitioners of both disciplines. Consequently, a fundamental knowledge transfer, underpinned by the adoption of ecogenomics to extend the forensic tool-kit, has initiated a novel, challenging and exciting area of study. Although the innovative potential and possible limitations have been recognised, the current literature paucity highlights the need for robust and multiple research initiatives. Nonetheless, some literature is beginning to emerge to highlight the relevance of investigative assessments of the potential of this cross-disciplinary topic to then ensure a knowledge base that will facilitate its wider application. Decomposition in soil - a complex and heterogeneous environment that supports a vast array of phylogenetically, phenotypically and functionally diverse microbial populations - mandates the application of molecular techniques to elucidate the indigenous microbial responses. Our ultimate aim is to track and use these dynamic and sequential processes as essential elements of a protocol to identify clandestine burial locales. Traditional methods do not address this challenge fully particularly if the deposited body has completely mineralised, been disturbed or remains are moved intentionally, e.g. in war crimes.

Biography

T Komang Ralebitso studied Biology (Pre-Medical) at Queens College of The City University of New York, and graduated BSc (Hon.) Environmental Microbiology from the University of Natal, prior to completing a PhD with the University of Natal and Vrije Universiteit Amsterdam. She held Post-doctoral positions at the BioMEMS Laboratory of Nanyang Technological University, Singapore, and the NERC Centre for Ecology & Hydrology, Oxford. She is Senior Lecturer in Molecular Biology, has published over 48 papers in journals and international conferences in molecular microbial ecology and has reviewed for several international research journals.

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