

9th Biotechnology Congress

August 31-September 02, 2015 Orlando, Florida, USA

Putrefaction inducer Proteobacteria versus Lactobacillales in cadaver gravesoil across all stages of decomposition

Sheree J Finley¹, Jennifer L Pechal², M Eric Benbow², B K Robertson¹ and Gulnaz T Javan¹ ¹Alabama State University, USA ²Michigan State University, USA

The study of the postmortem microbial transformations in gravesoil has yet to be fully investigated across all steps during putrefaction. Currently, there is a need for advanced biotechnological approaches to analyze postmortem microbiology of the gravesoil from cadavers. Soil microbial studies have estimated that the number of species of bacteria per gram of soil is up to eight million depending on the soil type. The goal of the present study is to survey the microorganisms associated with cadaver gravesoil collected from the Forensic Anthropology Research Facility at Texas State University to identify predominant microbes present during the stages of decomposition. Using next-generation sequencing, microbial community composition was isolated and characterized and the microbial communities' taxon richness was identified. The findings show that the taxa were variable and there was a decreasing trend in taxon richness, diversity and evenness over time for cadavers placed on the soil surface. The results also demonstrated that Proteobacteria was the most abundant phylum in all of the cadaver soil samples. There is also a marked decrease in both acidotrophic bacteria (Acidobacteria) and edaphic verrucae (Verrucomicrobia) in the samples. These novel findings add to the notion that documenting and discovering differences in bacterial communities is crucial to advancing the knowledge of cadaver decomposition in soil. Presently, results of a meta genomic approach of this kind remain unreported and have applicability towards advancing forensic investigations and studies.

Biography

Sheree J Finley is a PhD Student in Microbiology at Alabama State University. During her two year doctoral matriculation, she has published several review and research papers in scientific literature. She has expertise in microbial diversity of cadaver graves oil through a collaborative partnership with a "body farm" located at the Forensic Anthropology Center at Texas State (FACTS) outdoor Forensic Anthropology Research Facility (FARF). She was as an Oral Presenter and Demonstrator of DNA extraction techniques in an NSF grant-supported workshop titled "Hands-on Evaluation of the Thanatomicrobiome and Epinecrotic Communities" at the 2015 67th annual American Academy of Forensic Sciences (AAFS).

sfinley@alasu.edu

Notes: