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Anaerobic Bacteria with the Unusual Appetite for MTBE

Methyl tert-butyl ether (MTBE) is an intriguing groundwater pollutant. MTBE is a synthetic chemical with no natural sources and its biodegradation is a challenge to microorganisms. As a consequence of several decades of extensive use MTBE has become one of the most frequently detected groundwater contaminants, requiring remediation due to its persistence in the environment. We have demonstrated that anaerobic MTBE degradation can occur under different anoxic conditions, and may be an important process in anoxic environments. However, little is still known about the bacterial species that can utilize MTBE and the anaerobic biodegradation mechanisms are poorly understood. Our aim is to elucidate the activity of bacteria that mediate degradation of MTBE in anoxic subsurface environments. We are identifying novel microorganisms and their genes responsible for transformation/degradation of MTBE in order to develop tools for monitoring natural attenuation and enhanced biodegradation of MTBE in the environment.