

Electrokinetic bioaugmentation process for remediation of pentadecane-contaminated kaolinite

김상준, 박지연, 이유진, 양지원*
한국과학기술원 생명화학공학과
(jwyang@kaist.ac.kr*)

Bioremediation has several limits including the difficulty of microbial movement, low temperature, and the shortage of nutrients in the application to subsurface circumstance. Above limits can be solved by its combination with electrokinetic process. As the microbial surface is negatively charged, electrokinetics occurs transport of microorganisms from cathode to anode. The electrical power supplied can increase soil temperature to an optimal point of microbial growth. Additionally, nutrients like nitrogen and phosphorous can be supplied into soil by electromigration and electroosmosis flow. In this study, electrokinetic bioaugmentation process was designed to remediate hydrophobic organic compounds (HOCs)-contaminated soil. Variables including electric current, voltage, and electrolyte composition were adjusted to keep good microbial activity on biodegradation of contaminant.