Bioremediation of the Enbridge Oil Spill through Autochthonous Biostimulation

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Bioaugmentation is a developing method of remediating the disastrous effects of oil spills. If the existing species of hydrocarbonoclastic bacteria can be augmented through the addition of nutrients, the effects of an oil spill could be vastly reduced. In this experiment, soil samples from the Enbridge Oil Spill along the Kalamazoo River and control soil samples were augmented with various nutrients, and then levels of linear and branched alkanes were assessed after 0, 12 and 21 days using gas chromatography. This provided an indication of the degradation of hydrocarbons within the soil due to the augmented bacteria. In addition, the bacteria from the oil-affected soil and the unadulterated soil were augmented with LB and then serially diluted to assess and compare the quantities of bacteria existing in oil contaminated areas with non-contaminated areas. Quantification and identification of bacteria in contaminated areas allows for the assessment of whether hydrocarbonoclastic bacteria are likely to grow within these regions. Therefore, the possibility of successfully conducting autochthonous bioaugmentation in an oil-contaminated region, such as the Kalamazoo river, to degrade hydrocarbons can be evaluated.

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