Stimulatory Effect of Ferrous Sulfate Amendments on Polychorinated Biphenyl Anaerobic Dechlorination in Sediments. (S11-perez092054-Poster)

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Abstract:

The effect of ferrous sulfate (FeSO4) amendment on the extent and pattern of dechlorination of polychlorinated biphenyls (PCBs) in anaerobic sediment slurries was evaluated. The PCBs evaluated were Aroclors 1242, 1254, and 1260, which average approximately 3, 4, and 6 chlorines, respectively, per biphenyl. Microorganisms used in the dechlorination process were mixed cultures obtained from PCB-contaminated sites in the Hudson River, Silver Lake, and River Raisin. For the Hudson River inoculum the FeSO4 had an effect on the pattern of dechlorination, but not an effect on the extent. The River Raisin inoculum showed a FeSO4 effect only on the pattern of dechlorination of Aroclor 1254, and no effect with Aroclor 1242 or 1260. With the Silver Lake inoculum, FeSO4 did not effect either the pattern of extent of dechlorination of any of the Aroclors. These results indicate that the effect of FeSO4 amendment on PCB dechlorination depends on both the Aroclor and on the particular PCB-dechlorinating microorganisms present at a site.

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