Surfactants Effect On The Growth Of Nitroaromatics-Degrading Bacteria. (S11-deng194932-Poster)

Authors:

- S.K.Meyers* Oklahoma State University
- S.P.Deng Oklahoma State University

Abstract:

The nitroaromatic and nitramine compounds are persistent in the environment, which was partially attributed to their low solubility. Addition of surfactants could enhance their solubility, but may affect microbial growth. Studies were conducted to assess the impact of surfactants, including SDS, Steol CA-230, Tween 20, Tween 60, and Tween 80, at 0.4, 4.0 and 25 times the critical micelle capacity (CMC) on growth of three bacteria isolated from nitroaromatics-contaminated soils. These bacteria were capable of using TNT or RDX as a sole nitrogen source. SDS and Steol CA-230 reduced the growth of Isolate 3 with increasing surfactant concentration. Steol CA-230 greatly affected the growth of isolate 6, decreasing the absorbance from 1.5 to 0.1 with the addition of 19,125 mg L-1 (25 times the CMC). Interestingly, the growth of isolate 7 increased considerably upon addition of 0.4 and 4.0 times the CMC of SDS and Steol CA-230. In general, nonionic surfactants, including Tween 20, Tween 60, and Tween 80, had little effect, while anionic surfactants, SDS and Steol CA-230, inhibited growth of the bacteria tested.

Corresponding Author Information:

Shiping Deng Oklahoma State University 368 Ag Hall Stillwater, OK 74078-6028 phone: 405-744-9591 fax: 405-744-5269 e-mail: deng@agr.okstate.edu

Presentation Information:

Presentation Date: Wednesday, November 13, 2002 Presentation Time: 3:00-5:00 pm Poster Board Number: 1640

Keywords:

surfactants, nitroaromatics-degrading bacteria, bioremediation