Dynamics of actived sludge degradation of 2,4-Dichlorophenoxyacetic and its intermediates

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ABSTRACT

This study was to determine how an activated sludge and a pure culture acclimate and degrade the persistent organic, 2,4-dichlorophenoxyacetic acid (2,4-D), and many intermediates from its known metabolic pathways. The time curves of degradation, and biomass yield after degradation, were observed for all the substrates for the purposes of determining (1), if the intermediates restrict 2,4-D degradation; (2), the biomass yielding process in the course of 2,4-D degradation. Both cultures degrade 2,4-D readily when they had acclimated and degraded 2,4-D previously. The 2,4-D acclimated cultures, however, degrade the intermediate, 2,4-DCP at a slower rate than for 2,4-D itself. Although no evident that 2,4-DCP hindered 2,4-D degradation, the fact that 2,4-DCP was more difficult to degrade held true even for the 2,4-D cultures. When the cultures were placed into reaction with 2,4-DCP, specific mechanism must start from then. The 2,4-D degradation mechanism, once started for 2,4-D, may be useful all the way through. Biomass yields were higher intermediates further downstream. Energies derived from the oxidation were consumed breaking up of the original hard-to-treat substrates, but not for cell growth. 2,4-DCP degradation may require

Keywords : 馴化 ; 中間產物 ; 活性污泥 ; 產值

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