

Treatment of azo dye Orange II in a sequential anaerobic and aerobic-sequencing batch reactor system

Abstract

We studied the biodegradation of Orange II in a sequential anaerobic and aerobic-sequencing batch reactor system. Granular activated carbon was used either packed into a column or added directly into the anaerobic reactor to investigate the treatment performance between the two operation conditions. We found that the circulation of mixed liquor between the anaerobic reactor and the carbon-packed column enhanced the chemical oxygen demand from 28 to 52% and Orange II removal efficiencies from 88 to 96%, under simultaneous adsorption and biodegradation process. The morphology of microbes was observed under an electron-scanning microscope.

Keywords

Activated sludge; Azo dye; Color removal; Orange II; Sequencing batch reactor