Treatment of pulp and paper mill effluent using photo-fenton's process

Abstract

Wastewater from pulp and paper mill is one of the most important sources of pollutants mainly due to the pulping and bleaching processes. This study evaluates the effectiveness of photo-Fenton's process in reducing organic and suspended solid in pulp and paper mill wastewater. The photo-Fenton's process produces the strongest oxidation and consumes lower Fe2+ compared to the conventional Fenton's process. The conditions of the photo-Fenton's process were optimized such as the initial pH, the H2O2 concentration and the FeSO4+7H2O concentration. It was found that the optimal pH for Fenton's process was pH 5. The optimal initial concentration of H2O2 and FeSO4+7H2O were 500 and 400 mg L-1, respectively. The overall efficiency of BOD, and TSS reduced by the Fenton's process under optimal conditions attained up to 87.5 and 87.0%, respectively. Thus, the photo-Fenton's process has the potential to be used in the treatment of pulp and paper effluent.