Abstract

This paper describes the kinetic study of malachite green photocatalytic degradation using TiO₂ semiconductor catalyst and O₂/UV. Photocatalytic degradation of malachite green was proposed as pseudo zero reaction order with velocity constant ($k$) 0,015 ppm/minute. Optimum initial concentration was 20 ppm which malachite green could be degraded 74,167 % with 6 Watt UV lamp irradiation for 360 minutes. Significant effect was showed as pH solution changed. Optimum pH was 7 gave 60,021 % malachite green removal at initial concentration 40 ppm. 4-$N,N$-dimetilaminobenzofenon was known as dominant product of malachite green photocatalytic degradation.

Keywords: Malachite Green, Photocatalytic Degradation, TiO₂, Kinetic Study, O₂/UV.