Electrochemical Disinfection of Escherichia Coli in Hospital Wastewater

Dewi Indira[1] , Wasinton Simanjuntak[2] , Yandri[2] , Tugiono[3] , Sudibyo Abdullah[4] , Nurhudawati Ningsih[5]

[1] Postgraduate Doctoral Program, Department of Environmental Sciences, University of Lampung
[2] Postgraduate Chemistry, FMIPA, University of Lampung
[3] Postgraduate Department of Environmental Sciences, University of Lampung
[4] Tanjung Bintang National Research Agency, South Lampung
[5]Master of Chemistry, Faculty of Mathematics and Natural Sciences, University of Lampung
dewa.indira1705@gmail.com

Abstract

This research was conducted to study the use of electrohemical treatment for disinfection of *Escherichia coli (E-coli*) in hospital wastewater, with the main purpose to evaluate the effect of electrochemical potentials and contact time. A series of experiments were carried out in an electrochemical reactor with two graphite rods as cathode and two aluminum rods as anode. With respect to the purpose of the study, experiments were conducted by applying varied electrochemical potentials of 5, 10, and 15 Volts and contact times of 30, 60, 90, and 120 minutes. The experimental results showed that both potential and contact time have significant effect, and 97.6% percent of the *E-coli* was successfully inactivated by using a potential of 15 volts and contact time of 120 minutes. This performance implies that electrochemical disinfection has a promising potential as an alternative to chemical disinfection, which remains as the main methods applied today.

Keywords: *Hospital waste water, Esherichia coli*, electrochemical disinfection, potential, contact time.