



Optimization of the electrocoagulation process on the effectiveness of removal of Cefixime antibiotic from aqueous solutions

Roqiyeh Mostafaloo^a, Ahmad Reza Yari^b, Mohammad Javad Mohammadi^c,
Yusef Omidi Khaniabadi^d, Mahdi Asadi-Ghalhari^{b,*}

^aDepartment of Environmental Health Engineering, Qom University of Medical Sciences, Qom, Iran,
email: r.moostafaloo@gmail.com

^bResearch Center for Environmental Pollutants, Qom University of Medical Sciences, Qom, Iran; Tel. +989100290390;
Fax: +982537842227; emails: mehdi.asady@gmail.com (M. Asadi-Ghalhari), yari1ahr@gmail.com (A.R. Yari)

^cAsadabad School of Medical Sciences, Asadabad, Iran; email: javad.sam200@gmail.com

^dDepartment of Environmental Health, Health Care System of Karoon, Ahvaz Jundishapur University of Medical Sciences,
Ahvaz, Iran; email: yusef_omidi@yahoo.com

Received 3 November 2017; Accepted 26 November 2018

ABSTRACT

Nowadays, the remaining of antibiotics in aquatic environments is increasing. Although the amounts of these antibiotics are extremely small (from 1 ng to 1 µg), such tiny amounts can have poisonous effects on humans and aquatic organisms. Accordingly, this study aimed to analyze the effectiveness of the electrocoagulation process on the removal of CFX antibiotic from aqueous solutions. The aim of this study was to the removal of Cefixime antibiotic by electrocoagulation process from aqueous solutions. In a batch mode, several parameters such as pH (3–10), initial concentration (3–100 mg/L), electric current intensity (0.1–1.1 A), and retention time (20–120 min) were investigated on the removal efficiency of Cefixime. The most effective removal (90.1%) was obtained at pH of 6, initial concentration of 5 mg/L, electric current intensity of 0.7 A, and retention time of 60 min. According to the findings of this study, the electrocoagulation process can be considerable as an effective approach to remove Cefixime antibiotic from aqueous solutions.

Keywords: Antibiotic; Cefixime; Electrocoagulation; Aqueous solutions

* Corresponding author.