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THE APPLICATION OF ELECTROLYSIS METHOD TO DISINFECT WATER CONTAMINATED BY *SALMONELLA* AND *SHIGELLA*

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The elimination of Salmonella and Shigella from drinking water by electrolysis methods is the purpose of this study. The removal efficiency of bacteria was evaluated in different situations of pH (6 – 8), time (10; 20; 40 min) and voltages (10; 20; 30; 40 V) and the optimum conditions were found. Tests were also performed in optimum conditions on the influent sewage of chlorination pool. Data analysis was done by using SPSS software and Pearson correlation coefficient. The optimum conditions for elimination 10^5 Salmonella and 10^2 Shigella per milliliter were obtained at pH 7, the voltage of 20 V, and electrolysis time 20 min. In optimal conditions, the maximum removal efficiency of Salmonella and Shigella in both two synthetic and real samples were 100 and 99.9%, respectively. Due to the high efficiency of electrolysis method to eliminate Salmonella and Shigella, and also advantages such as relatively low-cost, non-production the disinfection byproducts and high efficiency is an effective method to remove fecal coliforms from drinking water.

Keywords: disinfection, fecal coliform, drinking water, McFarland.

Introduction

Salmonella and *Shigella* are considered as fecal coliform and pathogenic bacteria in contaminated water by domestic sewage. *Salmonella* includes large

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