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Comparative Study of Levocetirizine Elimination by Pristine and Potassium Permanganate Modified Activated Charcoal

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Abstract

The elimination capacity of pristine powder activated charcoal PAC and powder activated charcoal modified with potassium permanganate MPAC to remove levocetirizine drug was investigated. The activated charcoal was impregnated with KMnO_4 100 mg/L in order to improve the surface properties. The influence of concentration, time and pH on the adsorption of levocetirizine drug was conducted by means of UV-Vis spectroscopy. The experiments were carried out using two lines. Line 1; adsorption of the drug on pristine PAC and line 2; adsorption on MPAC. By batch experiments, the effect of levocetirizine concentrations of 25, 50, 75, and 100 mg/L, a reaction time of 15, 30, 45 and 60 min, and pH of 2, 4, 7 and 9 were investigated. The results showed that elimination capacity of both PAC and MPAC increased with increasing the drug concentration and time of contact and decreased with decreasing the pH. The elimination efficiency of MPAC found to be greater than that of PAC.

Keyword

Levocetirizine, Activated charcoal, Adsorption, Potassium permanganate, Elimination