



Spectrophotometric Determination of Cetirizine Hydrochloride in a Pharmaceutical Formulation Using Potassium Permanganate and Sulphanilic Acid as an Analytical Reagent

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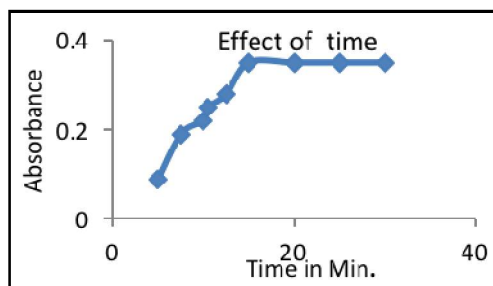
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Accepted on 2nd July 2018

ABSTRACT

For the determination of Cetirizine hydrochloride two simple and sensitive spectrophotometric methods are developed. The first method A is based on the addition of excess KMnO_4 of known concentration in the presence of $2\text{M H}_2\text{SO}_4$, reactants are allowed to react and the unreacted KMnO_4 is estimated with a fixed amount of Methyl Orange by measuring the absorbance at 510 nm. Beer's law was obeyed in the concentration range of $0.5 - 5 \mu\text{g mL}^{-1}$. Molar absorptivity was found to be $1.818 \times 10^4 \text{ L mol}^{-1} \text{ cm}^{-1}$. The second method B is based on the formation of orange color dye because of reaction between drug and diazotized Sulphanilic acid the absorbance of the resulting solution was measured at 510 nm. All parameters affecting the development of the color were investigated and the conditions were optimized. Under the optimum condition, Beer's law was obeyed in the concentration range $1.0 - 8.0 \mu\text{g mL}^{-1}$. Molar absorptivity was found to be $0.7534 \times 10^4 \text{ L mol}^{-1} \text{ cm}^{-1}$. The proposed methods are well suited for determination of Cetirizine hydrochloride in pharmaceutical formulations.

Graphical Abstract



Effect of contact time for the formation of color product in method A.

Keywords: Cetirizine hydrochloride, Diazotizedsulphanilicacid, Spectrophotometric, Methyl orange, Oxidation.