

Kinetic, analytic and spectrophotometric studies for the determination of Diphenhydramine hydrochloride in bulk and pharmaceutical preparation

Abstract

A simple and sensitive kinetic spectrophotometric method was developed for the determination of Diphenhydramine hydrochloride in bulk and pharmaceutical preparation. The method is based on the reaction of Diphenhydramine hydrochloride with potassium permanganate in alkaline medium to form a green color of potassium manganate at room temperature. The reaction is followed spectrophotometrically by measuring the rate of change of absorbance at 610 nm. The absorbance concentration plot was rectilinear over the range of 2.0-60.0 μ g/ml with limit of detection (LOD) of 1.183 μ g/ml and limit of quantification (LOQ) 3.585 μ g/ml. Different experimental parameters affecting the development and stability of the colour were carefully studied and optimized. The determination of Diphenhydramine hydrochloride by the fixed concentration and rate-constant methods is also feasible with the calibration equations obtained. The procedures were applied successfully for determination of diphenhydramine hydrochloride drug in commercial tablets