



ChemTech

International Journal of ChemTech Research

CODEN (USA): IJCRGG, ISSN: 0974-4290, ISSN(Online):2455-9555
Vol.13 No.01, pp 253-261, 2020

Kinetics Spectrophotometric determination of Ranitidine based on its Inhibitory effect on the Oxidation Rate of Malachite green by N-bromosuccinide

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Abstract : A simple and sensitive kinetic spectrophotometric method is described for the determination of ranitidine. The method is based on the inhibiting effect of ranitidine on the rate of oxidation of malachite green (MG^+) with N-bromosuccinimide (NBS) The oxidation reaction was followed spectrophotometrically by measuring the rate of change of the absorbance of malachite green with time at $\lambda=617nm$ in the presence of different concentrations of ranitidine using the recommended procedure. Ranitidine can be determined from 0.08 to $2.40 \mu g ml^{-1}$ with a linear calibration graph and detection limit of $0.026 \mu g ml^{-1}$. The method was successfully applied for the determination of ranitidine in pure ranitidine samples and in ranitidine tablets. The recovery of the analyzed samples were 97-100% with relative standard deviation, $sr (\%) = 1.14 \times 10^{-4}$ indicating high accuracy and precision of the suggested method. The interference of various cations and anions in the determination of ranitidine was studied.

Keywords : Malachite green, N-bromosuccinimide reactions, Kinetics, Ranitidine, Spectrophotometry.

Ashraf M. Taha *et al* /International Journal of ChemTech Research, 2020,13(1): 253-261.

DOI= <http://dx.doi.org/10.20902/IJCTR.2019.130132>
