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Research Article

SPECTROPHOTOMETRIC METHOD FOR THE DETRMAINATION OF BETA NITEDINE IN PHAMRACETUTICAL FORMULATION BY INDIRECT OXIDIMETRIC METHOD

Sachin Subhasharao Bangade

Government Vidharbha Institute of Science & Humanities 444604 Maharashtra, India

***Corresponding Author: Email** sachinbangade1@gmail.com

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ABSTRACT

A sample and sensitive spectrophotometric method in visible region has been developed for the determination of Beta- Nitedine . The reaction in the method is a stoichiometric oxidation when the drug is treated with an excess of oxidant N-Bromosuccinimide [NBS] .The unreacted oxidant is then estimated colorimetrically by using an oxidisable dye, Celestine blue [CB], Beer's law limits for method is10-100µg/ml. No interference applicability of the method was examined by analyzing tablets coating Beta-Nitedine.

Keywords: Beta-Nitedine tablet [Antihyperpension], spectrophotometer, N-Bromo succinimide, Celestine blue.

INTRODUCTION

Beta –Nitedine [Antihyperpension] 1-Benzyl-2-3Dimethyl Guanidine,N,N'-Dimethyl N''-[Phenyl methyl] sulphate.It is usually exployed hypertension as for the treatment of moderate of mild hypertension in patient. A survey of literature, Tobramycin is an aminoglycoside, antibiotic, with an extend spectrum of activity against gram negative and aerobic bacilli [1].It is chemically know as O,3-amino-3-deoxy-α-D-glucopyra[1,6]-O-[2,6-diamno-2,3,6-trideoxy- α - D-ribohexoglucopyranosy1]-2-deoxy-L-streptanime[2]. It is officially decribed in Indian pharmacopoeia[3].A survey of literature revealed that only two visible spectrophotometric method[4,5] have been reported. Other methods included HPLC [6, 7] .The reported spectrophotometric methods passes deficiencies such as a low max value or low sensitivity. Hence in this paper, the authors reports a simple, sensitive and reproducible spectrophotometric method for the determination of Beta-Nitedine in form as well as in pharmaceuticals formulation based on the oxidation of Beta-Nitedine by oxidant ,NBS, and estimation of unconsumed oxidant with Celestine blue [CB].

EXPERIMENTAL DETAILS

INSTRUMENT

An Elico SL 171 spectrophotometer with 1 cm matched quartz cell was used for all spectra and absorbance measurement. An Elico LI-120 digital PH meter was used for PH measurement.

REAGENTS

1] N-Bromo succinimide [NBS], [0.1%]-mg dissolved in 100 ml distilled and filter if necessary.

2] Celestine blue [CB] [0.2%] 200 mg dissolved in 100 ml distilled water.

3] HCL [5m]-217.5 ml of concentrated hydrochloric acid in 500 ml of distilled water.

STANDARD DRUG SOLUTION

A standard solution containing 1mg/ml of pure Beta-Nitedine of methanol from this solution, working standard solution was prepared by dilution with methanol [100µg/ml].

TABLETS

Sample drug solution was prepared by taking tablet powder equivalent to 50 mg of active ingredient [Beta-Nitedine] in 50 ml volumetric flask, shaken throughly with 25 ml of methanol and subsequently diluted to.50 ml with methanol. It was filtered if necessary to obtain clean solution & further diluted as in standard solution preparation.

ASSAY PORCEDURE

Aliquots of 1.0-6.0 ml of standard Beta-Nitedin [100µg/ml] solution were transferred into 25 ml volumetric flask and 1.25 ml of 5.0 ml HCL, 2.0 ml of NBS were added and the volume was made up to 20.0ml in each flask. After 15 min.5.0ml of CB was added and mixed throughly.After 5 mim the absorbance were measurement at 250 nm against distilled water.

The blank [omitting drug] and the dye [omitting drugs and oxidant] solution were prepared in a similar manner and their absorbance corresponding to consumed NBS and in turn to drugs concentration ,were obtained by subtracting the decreases in a absorbance of test solution [dye-test]from that of the blank solution [dye-blank].The amount of drug was calculated from its calibration graph.

RESULT AND DISCUSSION

The optical characteristics and observation parameter's together with the regression equation for the calibration plot are λ max$^{(nm)}$ -250,Beers's law limit[µg/ml]-2.25, molar absorptivity [1 mol^{-1}cm^{-1}] 2.0×10^{4} ,sandell's sensivity [mg cm^{-2} per 0.001 absorbance unit] -0.006,correlation coefficient (r) -0.9999 and relative standard deviation (%)-0.48.In order to confirm the suitability of the proposed method , recovery experiment were carried out by adding a know amount of Beta- Nitedin to the previously analyzed sample & proposed method was followed. The excipients present in the formulation do not interfere in the estimation. The accuracy of the method was confirmed by comparing the result obtained by the proposed method when compared with the reported method show good agreement.

CONCLUSION

The result indicates that the proposed method is simple in-expensive, accurate & reproducible and can be used for the routine determination of Beta-Nitedine in bulk drugs & its dosage forms.

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