

NOTE

UV Spectrophotometric Determination of Drotaverine Hydrochloride in Bulk and Pharmaceutical Formulation

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A simple, sensitive and reproducible UV spectrophotometric method for the determination of drotaverine hydrochloride in bulk samples and pharmaceutical formulations was developed. The maximum absorbance observed was at 241 nm in methanol. Beer's law was followed in the concentration range of 04-32 µg/mL.

Key Words: UV Spectrophotometric methods, Drotaverine hydrochloride.

Chemically drotaverine hydrochloride (DH), is 1-[(3,4-diethoxy phenyl)methylene]-6,7-diethoxy-1,2,3,4-tetrahydroisoquinoline^{1,2}. It is an analogue of papaver and is used mainly to reduce excessive labour pain³. DH is not official in any pharmacopoeia. Literature survey revealed that HPLC method is reported for its estimation from human plasma⁴.

UV-Vis double beam spectrophotometer, model Shimadzu UV-1601 with 1 cm UV matched quartz cells were used. Gift sample of DH was obtained from Blue Cross Pharmaceuticals Ltd., Nashik, India.

Preparation of standard drug solution: Standard stock solution of DH was prepared by dissolving 10 mg of DH in 100 mL of methanol (E. Merck).

Pharmaceutical formulation: 20 Tablets of brand (Drot-DS, Mapra Labs Ltd.) were weighed accurately. The average weight was determined and then ground to a fine powder. A quantity equivalent to 80 mg of DH was transferred to 100 mL volumetric flask. It was dissolved in methanol with intermittent shaking and the volume was made up to the mark. The resulting solution was filtered and the necessary dilutions were made with the same solvent to give final concentrations within the Beer's law range. The absorbances were recorded at 241 nm and the concentration was computed from its calibration curve.

The optical characteristics *viz.*, Beer's law limits, molar absorptivity are given in Table-1. Regression analysis was performed so as to evaluate the slope (a), intercept (b) and correlation coefficient and are represented in Table-1. Commercial formulation containing DH was successfully analysed by proposed method. As an additional check of accuracy of the proposed method, recovery experiments were performed by adding a fixed amount of the drug to the preanalysed formulations. The % recovery (as a mean of nine readings, 3 each at 80, 100 and 120%) was calculated and presented in Table-1.

TABLE-1
OPTICAL CHARACTERISTICS, STATISTICAL DATA OF THE
REGRESSION EQUATION AND ASSAY RESULTS OF
DROTAVERINE HYDROCHLORIDE IN TABLET

Parameters	Drotaverine hydrochloride
Absorption maximum (nm)	241
Beer's law limit ($\mu\text{g/mL}$)	4-32
Absorptivity	201
Coefficient of correlation	0.9996
Regression equation	$Y = 0.02x \pm 0.001$
Intercept (a)	-0.001
Slope (b)	0.02
% Label claimed (mean ^A + S.D.)	99.36 ± 0.31
% Recovery (mean ^B + S.D.)	99.64 ± 0.20

(A: mean of six estimations; B: mean of nine estimations)

Conclusion

The proposed method is simple, sensitive and accurate and can be used in the routine determination of DH in bulk samples and formulations with reasonable precision and accuracy. The method has the advantage of wider range under Beer's law limits.

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