Asian Journal of Chemistry Vol. 14, No. 1 (2002), 545–547

NOTE

Visible Spectrophotometric Determination of Terazosin Hydrochloride from Bulk Drug and Formulations

PRAKASH S. SARSAMBI, G.K. KAPSE and S. APPALA RAJU*
Department of Pharma Analysis, HKE'S College of Pharmacy, Gulbarga-585 105, India

Two simple and sensitive spectrophotometric methods are developed for the quantitative estimation of terazosin hydrochloride. In the first method, the drug solution was reacted with *p*-dimethyl amino benzaldehyde (PDAB) to form Schiff base which has maximum absorption at 410 nm. The yellow coloured chromogen was stable for more than 1 h. Beer's law was obeyed in the concentration range of 2–10 mcg/mL. In the second method the drug solution was reacted with bromo cresol purple in the presence of acid phthalate buffer (pH 2.2) to form yellow coloured complex with absorption maximum at 423 nm. The yellow coloured complex was stable for more than 2 h. Beer's law was obeyed in the concentration range of 10–60 mcg/mL.

***Key words*: Spectrophotometric estimation, terazosin HCl.**

Terazosin[1] [1-(4-amino-6,7-dimethoxy-2-quinazolinyl)-4-(tetrahydro-2-furanyl, carbonyl) piperazine, hydrochloride] is an α-1-adrenoceptor antagonist used in the treatment of hypertension. Literature survey reveals that a few methods like HPLC-HPTLC[2] and chromatographic[3] have been reported for its analytical monitoring in formulation. In the present work two simple visible spectrophotometric methods for estimation of terazosin hydrochloride from bulk drug and formulations using *p*-dimethyl amino benzaldehyde (PDAB) as reagent in method A and bromocresol purple in presence of acid phthalate buffer (pH 2.2) in method B have been developed.

Reagent and Solution: *p*-Dimethyl amino benzaldehyde solution (0.2%, w/v in alcohol). Concentrated hydrochloric acid. Preparation of acid phthalate buffer (pH 2.2): Buffer solution was prepared as per I.P.[5]. 50 mL of 0.2 M potassium hydrogen phthalate was placed in a 200 mL volumetric flask and 49.5 mL of 0.2 M hydrochloric acid was added and the volume was made up to the mark with distilled water.

Bromocresol purple solution (0.05%): Solution was prepared by dissolving 50 mg bromocresol purple in a mixture of 0.92 mL of 0.1 M NaOH and 20 mL of alcohol (95%) and made up to 100 mL with distilled water.

Standard solution for method A (Solution-I): 10 mg of terazosin HCl (drug

or equivalent formulation) was accurately weighed and dissolved in 100 mL of ethanol (100 mcg/mL).

Standard solution for method B (Solution-II): 10 mg of terazosin HCl (drug or equivalent formulation) was accurately weighed and dissolved in 100 mL of chloroform (100 mcg/mL).

All spectral measurements were made on Systronics-118 spectrophotometer.

Assay Procedure

Method A: Aliquots of terazosin ranging from 0.2 mL to 1.0 mL were transferred into a series of 10 mL volumetric flasks. To each flask 2.0 mL of PDAB (0.2%) and catalytic amount of concentrated HCl were added and heated on a water bath for 5 min. After cooling the volume was made up to the mark with alcohol. The absorbance of yellow coloured chromogen was measured at 410 nm against the reagent blank. The coloured chromogen was stable for more than 1 h. The amount of terazosin was computed from calibration curve.

Method B: From standard solution-II 2.5, 5.0, 7.5, 10.0 and 12.5 mL were pipetted out separately into 5 separating funnels. The volume was adjusted to 5 mL with chloroform. To each separating funnel 5 mL of buffer (pH 2.2) and 5 mL of bromo cresol purple (0.05%) solution were added. The funnel was shaken for 2 min. The contents were allowed to separate. The lower chloroform layer was collected in 25 mL volumetric flasks. The aqueous layer was extracted twice with 5 mL portions of chloroform; the chloroform layers were combined and the volume was made up with chloroform so that the concentration of the drug would be 10, 20, 30, 40 and 50 mcg/mL. Absorbance was measured at 423 nm against reagent blank. The amount of terazosin present in the sample was computed from the calibration curve. Results are reported in Tables 1 and 2.

TABLE-1
OPTICAL CHARACTERISTICS AND PRECISIONS

	Method A (PDAB)	Method B (Bromocresol purple)
λ_{max}(nm)	410	423
Beer's law limits (mcg/mL)	2 to 10	10 to 60
Standard deviation (s)	0.5709	0.6911
Coefficient of variation (%)	0.5751	0.6958
Standard error	0.3296	0.3090

The results shown in Tables 1 and 2 of the proposed methods have reasonable precision. Comparison of the result obtained with the proposed and reported methods for dosage forms (Table-2) confirms the suitability of the method for the determination of terazosin in pharmaceutical dosage forms. The other active ingredients and excipients usually present in pharmaceutical dosage form did not interfere. The proposed method is found to be simple, sensitive, accurate and can

be used for the determination of terazosin HCl in pharmaceutical dosage forms in routine manner.

TABLE-2
ESTIMATION OF TERAZOSIN IN PHARMACEUTICAL PREPARATION

Sample*	Labelled amount (mg)	Amount obtained (mg)		Reported method (mg)	% Recovery†	
		Method A	Method B		Method A	Method B
T_1	1	0.9829	0.9690	0.998	98.29	96.90
T_2	1	0.9864	0.9842	0.982	98.64	98.42
T_3	1	1.0085	1.0080	0.992	100.85	100.74

*Tablets from different manufacturers, † Average of 6 determinations.

ACKNOWLEDGEMENTS

The authors are thankful to M/s Abbott Lab. (I) Ltd., Mumbai for providing drug samples and the Principal, M.A. Halkai H.K.E.'s College of Pharmacy, Gulbarga for providing facilities to carry out the present work.

REFERENCES

1. The Merk Index, An Encyclopedia of Chemicals, Drugs and Biologicals, Merck & Co. New York, p. 1563 (1996).
2. J.F. Bauer, S.K. Krogh, L. Chang and C.F. Wangi, *J. Chromatogr.*, **648**, 175 (1993).
3. R.K. Bhamra, R.J. Flanagan and D.W. Holt, *J. Chromatogr. Biomed. Appl.*, **53** (*J. Chromatogr.*, 380), 216, 221 (1986).
4. S.E. Patterson, *J. Chromatogr. Biomed. Appl.*, 36 (*J. Chromatogr.*, 311), 206 (1984).
5. Indian Pharmacopoeia, The Controller of Publications, Delhi, Vol. IIA-144, A-202 (1996).

(*Received*: 8 September 2001; *Accepted*: 23 November 2001) AJC-2547