Asian Journal of Chemistry Vol. 19, No. 2 (2007), 1622-1624

NOTE

UV Spectrophotometric Determination of Ioratadine in Tablets

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Simple, sensitive and economical UV spectrophotometric method is developed for the estimation of loratadine in tablets. In this method, loratadine is determined accurately having absorbance maximum at 246 nm. Beer's law is obeyed in the concentration range 0-25 μg. Linearity is obtained in the concentration range of 5-25 μg/mL.

Key Words: Spectrophotometric analysis, Loratadine.

Loratadine chemically is 11-[N-(ethoxy carbonyl)-4-piperidylidene]-8-chloro-6,11-dihydro-5H-benzo(5,6)cyclohepta(1,2-b)pyridine and is used as antihistaminic drug[1]. The structural formula of Loratadine is as follows; as shown in Fig. 1.

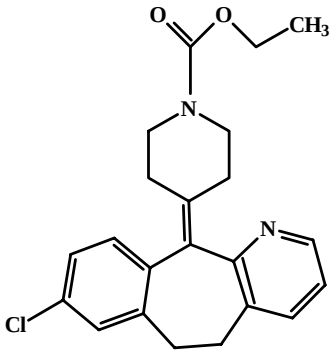

Fig. 1. Structure of loratadine

The main task of this work is to establish simple and accurate spectrophotometric method for the determination of Loratadine. This method can be used also for the routine and quality control analysis of Loratadine in raw material and pharmaceutical formulations.

This method can be used as stability indicating method also. Loratadine can be determined in presence of degradation products.

All the chemicals used were of analytical grade. Two commercial samples of the drug tablets were used for assay of the drug by proposed method in formulations[2]. Absorbance measurements were made on double beam UV spectrophotometer SL-164 Elico Ltd., with 1 cm matched quartz cells.

All absorbance measurements were made on a UV-spectrophotometer with 1 cm quartz cells.

Sample preparation for UV-spectrophotometric method: A weighed amount of tablet powder equivalent to 50 mg of loratadine was transferred into a 50 mL volumetric flask and dissolve in methanol. From the above solution prepare 100 μg/mL by using methanol: water (60 : 40).

Standard preparation for UV-spectrophotometric method: 50 mg of loratadine was accurately weighed, transferred to 50 mL volumetric flask, dissolved in methanol and the volume made up to 50 mL with same solvent. This solution was further diluted with methanol: water (60 : 40) to obtain a concentration of 100 μg/mL.

Assay procedure: Aliquots of solution 0.5-2.5 mL (100 μg/mL) were transferred in to a series of 10 mL volumetric flasks and the volume was made up to 10 mL with methanol: water (60 : 40). The absorbance was measured at 246 nm against a reagent blank. The amount of drug present in the sample was comupted from the Beer-Lambert plot. The optical characteristics such as Beers law limits, correlation coefficient, relative standard deviation is calculated and shown in Table-1.

TABLE-1
OPTICAL CHARACTERISTICS AND PRECISION DATA

Absorbance maximum (nm)	246
Beer's law limits (μg/mL)	5-25
Correlation coefficient	0.9999
Slope	0.0422
Intercept	0.00061

A pharmaceutical formulation of loratadine was successfully analyzed by the proposed method. The results obtained by the proposed method are presented in Table-2. Interference studies revealed that the common excepients and other additives usually persent in the dosage form did not interfere in the proposed method.

TABLE-2
ANALYSIS OF LORATADINE IN TABLET FORMULATION

S. No.	Batch	Label claim (mg/tablet)	Amount found (mg/tablet)	% Recovery*	% RSD*
1.	Tablet A	10	9.97	99.70	± 0.59
2.	Tablet B	10	10.03	100.03	± 0.50

*Values are mean of five determinations.

The proposed method is UV-spectrophotometric procedure for the determination of loratadine from tablet dosage form. The method is very simple, accurate, sensitive and reproducible. Reproducibility of the method was validated by recovery studies and result of which is close to 100%. Linearity is obtained in the concentration range of 5-25 μg/mL as shown in the Fig. 2.

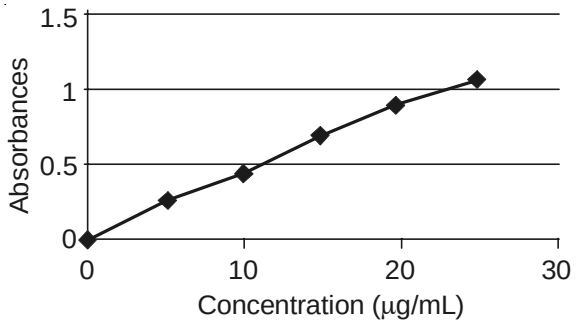

Fig. 2. Calibration curve

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(*Received*: 16 January 2006; *Accepted*: 20 September 2006) AJC-5151