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Research Article

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UV Spectrophotometric Determination of Olmesartan Medoxomil in Pure and Pharmaceutical Formulation

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Abstract Simple and sensitive method has been developed for determination of olmesartan medoxomil in both pure and pharmaceutical formulation. This method obeys Beer's law in the concentration range of 15-55 µg/ml, exhibiting maximum absorption at 258.10 nm. In this method no interference from the common pharmaceutical excipients was observed.

Keywords UV spectrophotometric estimation, Olmesartan medoxomil, Sodium laural sulphate

Introduction

Olmesartan medoxomil is a new angiotensin II receptor antagonist agent. Chemically, olmesartan medoxomil is (5-methyl-2-oxo-2*H*-1,3-dioxol-4-yl)methyl 4-(2-hydroxypropan-2-yl)-2-propyl-1-({4-[2-(2*H*-1,2,3,4-tetrazol-5-yl)phenyl]phenyl}methyl)-1*H*-imidazole-5-carboxylate. The empirical formula is $C_{29}H_{30}N_6O_6$ and its molecular weight is 558.585 g/mol. Literature survey reveals that no visible and UV methods have been reported for estimation of olmesartan medoxomil. An attempt has been made to develop an accurate and reliable UV spectrophotometric method for the estimation of olmesartan medoxomil in pure as well as in pharmaceutical dosage forms.

Materials & Methods

All the chemicals used were of analytical grade. A Thermospectronic UV1, UV-Vis double beam spectrophotometer was used for all absorbance measurements. Literature suggests that olmesartan medoxomil has very poor water solubility. The solubility study conducted revealed that olmesartan medoxomil has appreciable solubility in 0.1% sodium lauryl sulphate.

100 mg of olmesartan medoxomil was accurately weighed and dissolved in 100 ml solution of 0.1 % sodium laural sulphate, to obtain a working standard of 1000 µg/ml. 100µg/ml solution was made by taking 10 ml from the above solution and make up the volume with distilled water upto 100 ml., this was 100 µg/ml. All the further dilutions ranging from 15-55 µg/ml were made by dilution with distilled water. Aliquots of solution ranging from 15-55 ml. were transferred into a series of volumetric flasks and the volume was made up to 10 ml with distilled water. The individual samples were scanned from 200-300nm, the maximum absorbance was observed at 258 nm.

Results and Discussion

Thus the absorbance was measured as 258 nm against a blank reagent that is 0.1%SLS solution. The Beer's law limit, Sandall's sensitivity, molar extinction coefficient, percent relative standard deviation, regression equation, correlation coefficient were calculated and shown in the Table-1.

Table 1: Optical Characteristics of the Proposed Method

Parameters	**Olmesartan medoxomil**
λ_{max} (nm)	258nm
Beer's law limit (µg/ml)	15-55
Sandall's sensitivity (µg cm^{-2}/0.001 absorbance unit)	0.1330
Molar absorptivity ($Lmol^{-1}cm^{-1}$)	6.092 X 10^{3}
Regression equation (Y= mX + c)	
Slope (m)	2.0 X 10^{-2}
Intercept (c)	-2.82 X 10^{-1}
Correlation coefficient (r)	0.999
Relative standard deviation (%)	64.6542888

The results of analysis of pharmaceutical formulation of olmesartan medoxomil are presented in Table-2. An accurately weighed tablet powder of olmesartan medoxomil equivalent to 100 mg of pure drug was dissolved in 100 ml methanol. This solution was filtered using whatmann filter paper No. 41 and further diluted with 0.1% sodium lauryl sulphate to obtain the concentration of 50 µg/ml. Recovery studies were carried out to establish the validity and reproducibility of the developed method. Known amount of pure drug was added to the previously analyzed tablet sample and mixtures were analyzed tablet sample and mixtures were analyzed by the proposed method.

Table 2: Estimation of Olmesartan Medoxomil in Pharmaceutical Formulation

Sample	**Labelled amount**	**Amount found in**	**Recovery**
Olmesartan medoxomil	**(mg)**	**proposed method (mg)**	**(%)**
Tablet I	20	20.14	99.30
Tablet II	20	20.02	100.05

Conclusion

Thus it could be concluded that the proposed method is simple, accurate and sensitive. Recovery studies revealed that the method is reproducible. It was observed that determination of olmesartan medoxomil was not interfered by the presence of excipients. Thus the present method could be used for determination of olmesartan medoxomil both bulk and pharmaceutical formulation.

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