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UV SPECTROPHOTOMETRIC ESTIMATION OF VALIZODONE IN PURE AND TABLET DOSAGE FORM

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ABSTRACT

A new simple, rapid, accurate, sensitive and precise spectrophotometric method in ultra violet region has been developed for determination of Valizodone in pure and tablet dosage form. Valizodone exhibited maximum absorbance at 241 nm in methanol. Beer's law was found to be obeyed in the concentration range 2-10 µg mL^{-1}. Correlation coefficient was found to be 0.999. The developed method was validated respect to linearity, precision, accuracy. The proposed method is useful for the routine estimation of Valizodone in pure and tablet dosage form.

Key words: Valizodone, UV estimation, Validation.

INTRODUCTION

Vilazodone is chemically 5-(4- [4-(5-cyano-1*H*-indol-3-yl)butyl] piperazin-1-yl) benzofuran-2-carboxamide. Vilazodone belongs to the category like serotonergic antidepressant. Vilazodone is a indole-piperazine that functions as an SSRI and 5-HT1A receptor partial agonist. A literature survey reveals that Vilazodone can be estimated by RP-HPLC in formulation [1], LCMS [2, 3]. Vilazodone is soluble in methanol. The present work aims to develop a simple uv method using methanol as solvent.

EXPERIMENTAL METHODS

Apparatus

T60 UV-Visible Spectrophotometer with 1 cm matched quartz cells were used for all spectral measurements. Digital Balance: BL-220H, Shimadzu was used.

Materials

All chemicals used were of analytical reagent grade. The chemical reagents prepared on the day of experiment.

Procedure

Standard stock solution of Vilazodone (1000 µg mL^{-1}) was prepared in methanol. It was further diluted to obtain 2, 4, 6, 8 and 10 µg mL^{-1} with methanol. The absorbance was measured at 241 nm against methanol as blank. The calibration curve was plotted in the concentration range of 2 to 10 µg mL^{-1} of Vilazodone.

Procedure for pharmaceutical formulation

Twenty tablets were weighed accurately and triturated to fine powder. The powder equivalent to 100 mg Vilazodone was weighed and transferred to 100 mL volumetric flask. To this 50 mL of methanol was added and sonicated for 15 minutes, then filtered through Whatman No. 42 filter paper. The residues were washed thoroughly with methanol and further diluted with methanol to 4 µg mL^{-1} concentration and the absorbance measured at 241 nm against acetonitrile as a blank. Amount of Vilazodone present in the tablets were calculated.

RESULTS AND DISCUSSION

The optical characteristics such as Beer's Law limit, molar absoptivity, Sandell's sensitivity, slope and intercept are summarized in Table 1. The assay and precision studies results for tablets containing Vilazodone are shown in Table 2. The assay of Vilazodone was validated with respect to stability, linearity, precision and accuracy. To ensure the accuracy and reproducibility of the

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results obtained, known amounts of pure drug was added to the previously analysed formulated samples and these samples were reanalyzed by the proposed method and also performed recovery experiments.

Table 1. Optical characteristics of proposed method

Parameters	Values
λ_{max} (nm)	241
Beer's law limit (µg/ml)	2-10
Sandell's sensitivity (µg/cm^2/0.001 absorbance unit)	1.212×10^{-2}
Molar absorptivity (l/mol/cm)	5.2229×10^{4}
Regression equation (Y = a + bc) Slope (b) Intercept(a)	 0.152 0.046
Correlation coefficient (r^2)	0.999

Table 2. Assay and recovery of Vilazodone

Dosage form	Labeled amount (mg)	*Amount found		*Percentage recovery
		mg	%	
Vilazodone Tablets	50	49.9	99.99	100.13

*Each value is an average of six determinations.

CONCLUSION

The developed UV spectroscopic method is precise and accurate. This method can be applied for routine analysis of Vilazodone from tablet dosage form.

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