ORIGINAL ARTICLE

ASSAY OF FEXOFENADINE BRANDS USING UV SPECTROPHOTOMETER

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ABSTRACT

Background: Fexofenadine is widely used drug for Rhinitis. It is a selective histamine H1 receptor antagonist. **Objectives:** In our recent research we developed a least time consuming simple and efficient UV spectrophotometric method for the assay of fexofenadine. **Methods:** The assay is based on the Ultraviolet Spectroscopy (UV) measuring absorbance maxima at about 220nm wavelength of fexofenadine. A sample of drug was dissolved in water to produce a solution containing furosemide. Similarly, a sample of ground tablets of two different brands of fexofenadine were dissolved in water and various dilutions were made. **Results:** The absorbance of sample preparation was measured at 220nm against the solvent blank. Regression line was obtained for different dilutions. **Conclusion**: The analysis shows a linear relationship between absorbance and concentration. Thus the use of UV spectrometry is easy technique to assess fexofenadine concentration.

KEY WORDS: Fexofenadine, spectroscopy, Telefast, Xanidine, UV spectrophotometer.

1- INTRODUCTION

Fexofenadine is 2-4-1-hydroxy-4-[4-hydroxydiphenylmethyl piperidino] butyl phenyl]-2-methylpropanoic acid. This is a selective histamine H1 receptor antagonist. It is commonly used in seasonal allergic rhinitis, urticarial conditions allergy symptoms, such as nasal congestion and hay fever [1]. In humans the drug is eliminated unchanged in biliary excretion [2]. It is generally called as a third-generation antihistamine. It has a limited action on brain and spinal cord. Fexofenadine a no sedative drug [3]. Fexofenadine is quite a safe drug as has shown no cardiovascular to occur even taken 10 times more than the recommended dose [4]. Fexofenadine has a shorter half-life than cetirizine and it is taken twice daily [5]. This drug is a racemic mixture of both *R*- and *S*-enantiomers. In their clinical effects both enantiomers has equal potency [6, 7]

The aim of study is to develop a simple and least cost effective method for the assay of fexofenadine. This method is preferred over other methods as UV as routine analysis in pharmaceutical organizations. We have already performed such type of work Spectrometers are easy and simple system it take less time to analyze. These studies are very helpful for pharmacist, doctors and drug prescribers to choose best drug [8].

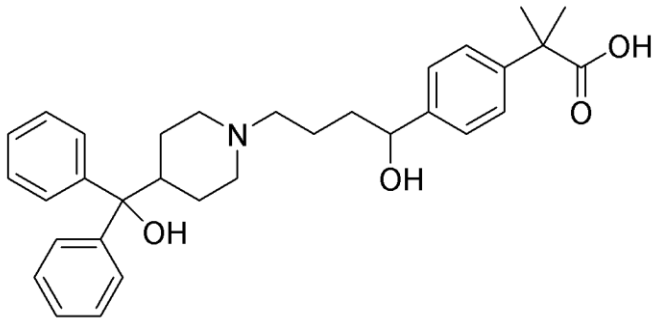


Figure1: Structure of Fexofenadine.

1. Materials and Methods

Pyrex glass wares, beakers, measuring volumetric flask, cylinder pipette, funnel and stirrer were used. All glass wares were washed and rinsed with double distilled water. Reagents used were as follows 0.1N Sodium hydroxide, 0.1N Hydrochloric acid and de-ionized water or double distilled water. All the Reagents were of Analytical grade.

2.Instruments

UV Lamp Power of 8N, Serial NO: N 045571, LF-204.LS '4W-254 and 365 nm', Spectrophotometer with a quartz cuvette T80 UV-VI spectrometer 'PG Instrument', Weighing Balance Item PA214C: 'Pioneer OHAIUS' and Water Bath 'HH-4' having digital and constant temperature tank.

2.2 Preparation of solution of different brands of Fexofenadine

Each tablet of Fexofennadine brands individually was weighed on the weighing balance. The tablets individually were grounded and triturated with the help of mortar and pestle to make them in powder form. To prepare the 100 ppm solution of each brand accurately, we weighed triturated powder of each brand i.e. Xadine and Telfast equivalent to 20 mg of Fexofenadine transferred into a beaker and dissolved in small quantity in de-ionized water. These primary solutions were transferred separately into six volumetric flasks of 100ml. Finally volume was made-up with de-ionized water. The absorbance of solutions of each brand of fexofenadine was determined by using UV-Visible spectrophotometer, at wave length max of 220nm. Four different dilutions were then made i.e of 50ppm, 25ppm and 12.5ppm from the stock solution by serial dilution.

2.3 Procedure:

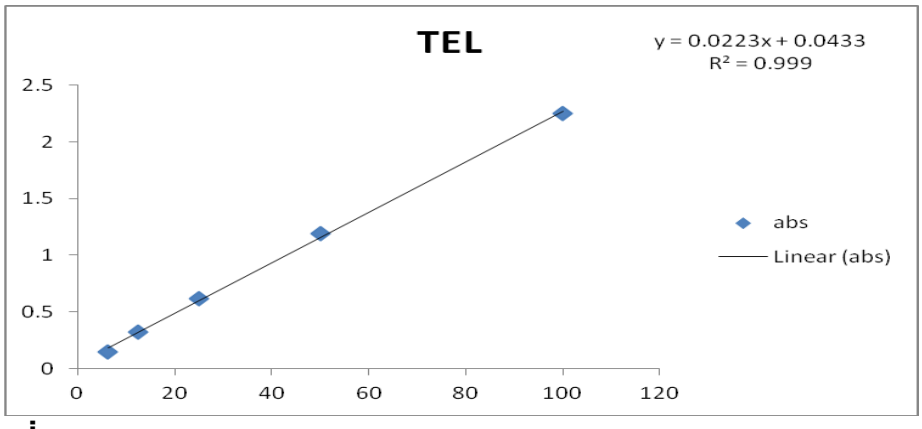
After preparation of standard and sample solutions, strength of solution 100 ppm, 50ppm, 25ppm 12.5ppm and 6.25 in 100 ml absorbance of the sample preparation and standard preparation of different brands of fexofenadine in 1cm cell at the wavelength of maximum absorbance at about 220nm, using a spectrophotometer, using the blank solution. Regression line was obtained for different dilutions.

2. Result and Discussion

After preparation solutions of different strength i.e 100 ppm, 50ppm, 25ppm ,12.5 and 6.25ppm in 100 ml absorbance of the solutions of different brands of fexofenadine was measured at the wavelength of maximum absorbance at about 220nm, using a spectrophotometer. There was no significance difference in the results of both the brands. At 100ppm of strength the absorbance of Xanidine is finding to be 2.251 and of Telefast is finding to be 2.25. At 50ppm of strength the absorbance of Xanidine is found to be 1.18 and of Telefast is found to be 1.19. At 25ppm of strength the absorbance of Xanidine is found to be 0.66 and of Telefast is found to be 0.62. At 12.5ppm of strength the absorbance of Xanidine is find to be 0.34 and of Telefast is found to be 0.32. At 6.25ppm of strength the absorbance of Xanidine is found to be 0.16 and of Telefast is found to be 0.15. Regression line was obtained for different dilutions. A Linear pattern is obtained for both the drugs as shown in Figure 2 and 3.

Table1: Absorbance of different brands of Fexofenadine.

Concentration (ppm)	Xanidine	Telefast
100	2.251	2.25
50	1.18	1.19
25	0.66	0.62
12.5	0.34	0.32
6.25	0.16	0.15



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gure 2: Linearity graph for Telefast (TEL: Telefast).

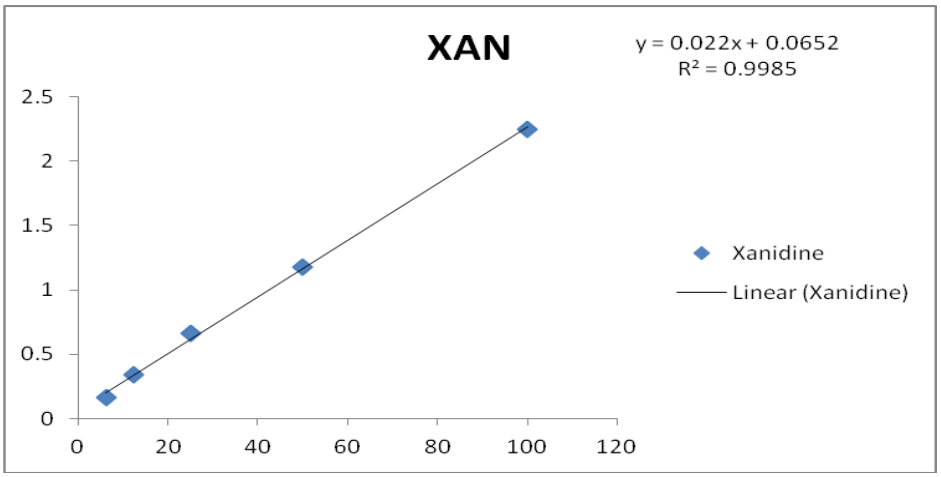

Figure 3: Linearity graph for Xanidine. (XAN: Xanidine)

2-CONCLUSION:

The analysis shows a linear relationship between absorbance and fexofenadine concentration. Thus the use of UV spectrometry is easy technique to assess fexofenadine concentration.

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