

Quantitative Estimation of Oseltamivir by UV-Visible spectrophotometric Method

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ABSTRACT:

Oseltamivir is an antiviral medication used to treat influenza A and B. This UV method was developed using methanol as a solvent. In the method, the wavelength selected for the analysis was found to be 220nm. UV visible double beam spectrophotometer (syntronic 2201) was used to carry out a spectral analysis. The absorbance of different serial dilutions was checked in the UV spectrophotometer at a wavelength of 220nm. The calibration curve was plotted by taking the concentration of oseltamivir on the x-axis and absorbance on y-axis.

Keywords: Oseltamivir, methanol, UV Visible double beam spectrophotometer, calibration curve.

INTRODUCTION:

Oseltamivir is administered orally, it is an antiviral medication used to prevent and treat influenza A & B. Oseltamivir inhibits the neuraminidase enzyme, which is expressed on the viral surface. The enzyme promotes release of virus from infected cells and facilitates viral movement within the respiratory tract.

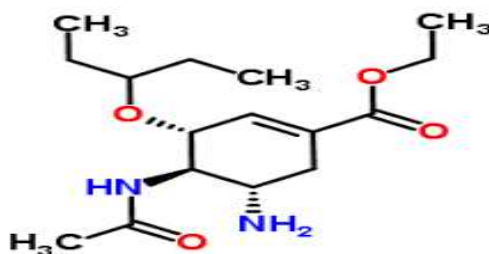


Figure-1: Structure of oseltamivir

Molecular formulae: C₁₆H₂₈N₂O₄

Molecular weight: 312.4 g/mol

The UV-Visible spectrophotometry is a technique that uses the maximum absorbance of light by an analyte at a certain wavelength to determine the analyte concentration. It uses the light in Uv region (180-380nm) and visible region (400-800nm) of the Electromagnetic spectrum.

MATERIALS AND METHOD:

Material:

High grade of volumetric flask, pipette, beaker, test tube was used in this method.

Preparation of stock solution:

In a clean and dry 10ml volumetric flask, 10mg of standard oseltamivir was accurately weighed and transferred. It was dissolved in 5ml of AR grade methanol and the volume was made up to 10ml with distilled water.

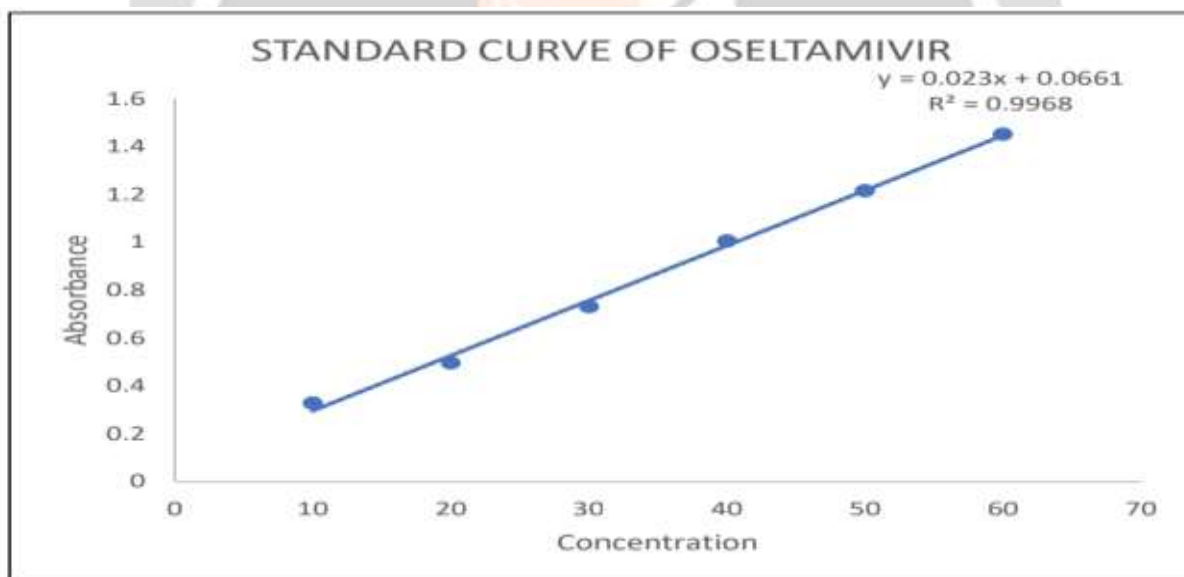
The stock solution was ready with 1000ppm of standard drug substance.

Preparation of calibration curve:

From the stock solution, the serial dilutions were prepared by pipetting out 0.1ml, 0.2ml, 0.3ml, 0.4ml, 0.5ml, 0.6ml and dilute it with methanol and water (1:1).

RESULTS AND DISCUSSION:

The λ_{\max} of oseltamivir in methanol was found to be 220 nm. oseltamivir was found to be linear within the concentration range 10-60 μ g/ml and exhibited a correlation coefficient of 0.9978.



Graph-1:The standard curve of oseltamivir

LINEARITY OF OSELTAMIVIR

Concentration	Absorbance
10	0.328
20	0.495
30	0.731
40	1.005
50	1.214
60	1.451

Table-1: linearity data of oseltamivir

The table1 indicates the serial dilutions of 2ppm, 4ppm,6ppm,8ppm.and 10ppm with respective absorbance values which are linear. There is more difference in sample absorbance value compared to that of standard value.

CONCLUSION:

The method which is proposed in the above study was found to be simple and economic.Determination of oseltamivir in formulations were good agreement with their respective label claims without any interferences of excipients or additives. The calibration curve was plotted and found to be linear.

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