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Spectrophotometric Determination of Vandetanib in Bulk by Area Under Curve and First Order Derivative Methods

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Abstract: It is a simple, precise and economical UV-spectrophotometric method has been developed for the estimation of Vandetanib from bulk. Two method was developed First method (A) applied was area under curve (AUC) in this method area was integrated in wavelength from 323.59-333.36nm. Second method (B) was first order derivative spectrometric method. In this method absorbance at λmin=311.27nm, λmax=340.54nm and zero cross=328.37nm was measured. Calibration curves were plotted for the method by using instrumental response at selected wavelength and concentration of analyte in the solution. Both the method linearity was observed in the concentration range of 5-30µg/ml at the λmax=328.44nm. Accuracy and precision studies were carried out and result were satisfactory obtained. The drug at each of the 80 %, 100 % and 120 % levels showed good recoveries that is in the range of 97.00 to 99.00% for both methods, hence it could be said that the method was accurate. Limit of detection (LOD) and limit of quantitation (LOQ) were determined for the method. The method was validated by the International Conference on Harmonization. All validation parameters were within the acceptable limit. The developed method was successfully applied to estimate the amount of vandetanib in pharmaceutical formulation.

Key words: UV, validation, Assay, Precision, % Recovery, Vandetanib, area under curve.

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