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Spectrophotometric Determination of Cycloserin in Bulk and Capsule Dosage form by Area Under Curve and First Order Derivative Methods

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Abstract : It is an simple, precise and economical UV- spectrophotometric method has been developed for the estimation of Cycloserinein pharmaceutical dosage form. First method (A) applied was area under curve (AUC) in which area was integrated in the wavelength of range212.0nm-222.0 nm. Second method (B) was first order derivative spectrometric method. In which method absorbance at λmin =207.6nm, λmax = 236.4 and zero cross= 217.0 nm was measured. The calibration curves were plotted for the method by using instrumental response at selected wavelengths and concentrations of analyte in the solution. Linearity observed in the concentration range of 5-25 µg/ml for the method. Capsule formulation was analyzed and the percentage of drug determined in the assays was 98.00-99.00%. Accuracy and precision studies were carried out and results were satisfactory obtained. The results of the analysis were validated statistically. 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 Cycloserine in pharmaceutical formulation.

keywords: Cycloserine, UV-spectrophotometry, Area Under Curve, First order derivative, Validation.

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