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# Area under Curve and First Order Derivative Spectrophotometric Method and Development and Validation of Adenosine in Bulk drug

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**Abstract :** The main aim of the study was to develop and validate simple, sensitive, precise and cost-effective method for the estimation of Adenosine in bulk and pharmaceutical dosage form as per ICH guidelines. Two spectrophotometric methods have been developed for determination of Adenosine from tablet dosage form. First method was area under curve method in which the range of 251.28–260.88 nm was selected. Second method was first order derivative spectrophotometric method which had absorbance measured at $\lambda_{min}$= 243.99 nm, $\lambda_{max}$ = 268.62nm and Zero cross = 256.30 nm. The calibration curves were plotted for the method by using instrumental response at selected wavelengths and concentrations of analyte in the solution. Linearity for detector response was observed in the concentration range of 10-18µg/ml at the $\lambda_{max}$= 256.89 nm. The method was validated by the International Conference on Harmonization using parameters of Accuracy, Precision, LOD and LOQ. Good reproducibility and recovery was observed in both the above methods with % RSD less than 2. The proposed methods were found to be rapid, specific, economical and accurate and can be successfully applied for the routine analysis of Adenosine in bulk and pharmaceutical dosage forms.

**Keywords :** Accuracy, Linearity, Precision, Adenosine, First order derivative spectroscopy, Area under curve method.

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