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## Development and Validation of UV Spectrophotometric Area under Curve Method for Quantitative Estimation of Piperacillin and Tazobactam

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**Abstract:** The aim of the present work was to develop an accurate, precise, reproducible and economical UV spectrophotometric Area under Curve method for the estimation Piperacillin and Tazobactam. The UV– spectrophotometric method was carried out using methanol as a solvent. Area under the Curve in the range of 203-218nm and 208-216nm was selected for the analysis of Piperacillin and Tazobactam respectively. The method was validated according to International Conference on Harmonization guidelines and successfully applied to marketed pharmaceutical formulations. The method was found to be linear in the concentration range of 10-50 µg/ml ( $r^2 = 0.999$ ) and 5 - 25 µg/ml ( $r^2 = 0.998$ ) with the regression equation y = 0.040x + 0.012 and y = 0.031x - 0.006 for Piperacillin and Tazobactam, respectively. Satisfactory values of Percent relative standard deviation for the intra-day and inter-day precision studies indicated that method is precise. The developed method can be used for routine estimation of Piperacillin and Tazobactam in formulation.

**Keywords:** Area under Curve, Piperacillin, Tazobactam, UV spectrophotometry, Quantitative estimation.

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