A Derivative UV Spectrophotometry Approach for the Estimation of Tapentadol Hydrochloride and Paracetamol in Marketed Formulation

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Abstract:A simple, rapid, precise and accurate derivative spectrophotometric method has been developed for simultaneous analysis of Paracetamol (PCM) and Tapentadol (TAP) in their combined dosage form. First order derivative method involves measurement of absorbance at 257.60 nm (for TAP) and 289.20 nm (for PCM) in first order derivative spectra. Developed method was validated according to ICH guidelines. The calibration graph follows Beer's law in the range of 1.0 to 13.0 μg/ml for Tapentadol and 6.5 to 39 μg/ml for Paracetamol with R square value greater than 0.998. The accuracy of themethod was determined by recovery studies and showed % recovery between98 to 102%. Intraday and inter day precision was checked for the method and mean %RSD was found to be less than 2 for this methods. The method was successfully applied for estimation of Paracetamol and Tapentadol in themarketed formulation.

Key words: Tapentadol hydrochloride, Paracetamol, First order derivative, D-value.

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