**[Development and Validation of Novel Analytical Method for Empagliflozin and Metformin Hydrochloride in Bulk and Pharmaceutical Dosage Form by Four Different Simultaneous Estimation Approaches using UV Spectroscopy](https://rjptonline.org/AbstractView.aspx?PID=2020-13-3-33)**

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**ABSTRACT:**   
Four new UV spectrophotometric methods namely simultaneous equation, absorbance ratio, area under curve and first derivative (zero crossing) spectroscopic methods were developed and validated for simultaneous estimation Empagliflozin and Metformin hydrochloride in bulk and tablet formulation. In simultaneous equation method, absorbance was measured at 224 and 232 nm for both the drugs. Empagliflozin and Metformin hydrochloride was estimated using 224 and 232 nm in absorbance ratio method. In Area under curve method both drugs were estimated at 224 and 232 nm respectively. First derivative (zero crossing) method was based on the transformation of UV spectra in to first derivative spectra followed by measurement of first derivative signal at 224 and 232 nm for Empagliflozin and Metformin hydrochloride, respectively using 2 nm as wavelength interval (??) and 1 as scaling factor. Methods were found to be simple, fast, highly sensitive, cost effective and hence can be useful for simultaneous estimation of Empagliflozin and Metformin hydrochloride in commercial tablet formulation for routine quality control analysis.

*Keywords:*

* [Simultaneous equation](https://rjptonline.org/AbstractView.aspx?PID=2020-13-3-33)
* [absorbance ratio](https://rjptonline.org/AbstractView.aspx?PID=2020-13-3-33)
* [area under curve method](https://rjptonline.org/AbstractView.aspx?PID=2020-13-3-33)
* [first derivative (zero crossing) spectroscopic methods](https://rjptonline.org/AbstractView.aspx?PID=2020-13-3-33)
* [tablet formulation.](https://rjptonline.org/AbstractView.aspx?PID=2020-13-3-33)

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