

Simultaneous UV-VIS spectrophotometric determination of aspirin and methocarbamol in tablets

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Background and Aims: Acetylsalicylic acid (ASA) and methocarbamol (MET) are used in association for myorelaxation and analgesic purposes. ROBAXISAL[®] is trade name for compound of these drugs consist of 400 mg MET and 325 mg ASA. As there is no report for the analysis of both drugs in combined dosage forms, developing a rapid, simple assay procedure for simultaneous analysis of ASA and MET, can help quality control laboratories. The present paper describes a spectrophotometric method for simultaneous determination of ASA and MET in bulk material and in tablets.

Methods: Standard solutions of ASA and MET containing concentration ranges of 20-70 and 20-60 mg/ml were prepared in ethanol, respectively. Spectra were achieved from 200 to 400 nm. The absorption spectra of the binary mixtures prepared at different concentrations of ASA and MET were recorded and stored. The second-derivative UV spectrophotometry used for determining MET ($\lambda=287.1$) and ratio-derivative spectrophotometry used to determine ASA (second derivative ratio, $\lambda=240.5$). Then the mixture of these drugs with concentration as real dosage form prepared and method validation parameters like precision, accuracy, LOD, LOQ and stability of the solutions were examined at the presence and absence of light and room and refrigerator temperature. Real samples were analyzed by the developed method to determine the method applicability in real situations.

Results: The second-derivative UV spectrophotometry used for determining MET ($\lambda=287.1$). Mean second derivative value of 0.7337 with RSD of 0.92% was obtained for MET. Ratio-derivative spectrophotometry used to determine ASA (second derivative ratio, $\lambda=240.5$). Mean second derivative ratio value of 1.5488 with RSD of 0.54% was obtained for ASA.

Conclusion: Results indicated that this method is suitable, simple, rapid, cheap and sensitive for simultaneous determination of ASA and MET. The proposed methods are recommended for the routine analysis of these drugs in their mixtures in quality control laboratories.

Keywords: Aspirin; Methocarbamol; UV-Vis spectrophotometry