English summary

" Analytical study on some anti-inflammatory drugs"

The object of the present work is to develop simple, efficient and selective methods for the quantitative determination of the intact molecules of the three studied drugs namely, aceclofenac (AC), lornoxicam (LM) and piroxicam (PM) which can be adopted for their stability studies.

Aceclofenac is determined in presence of its degradation product using different chemometric methods namely classical least squares (CLS) method, principle component regression (PCR) method and partial least squares (PLS) method . The bivariate calibration algorithm was also applied to the spectrophotometric determination of aceclofenac in the presence of its degradation product. This algorithm involves the use of four calibration curves: two for each compound at two different wavelengths selected by the method of Kaiser. The proposed method was applied for the analysis of the drug in its pharmaceutical formulation and the results obtained agreed well with those obtained with the reported method.

Three selective, precise and accurate methods are described for determination of lornoxicam in presence of its acid-induced degradates. The first method utilizes zero order spectrophotometry at 380 nm. The second method is a densitometric one, after separation on silica gel plate using chloroform: methanol (95:5 v/v) as mobile phase and the spots were scanned at 380 nm. The third method is RP-HPLC using acetonitrile: phosphate buffer pH 6 (50:50 v/v) as mobile phase at a flow rate of 1ml/min and UV detection at 275nm. These methods are suitable as stability indicating methods for the simultaneous determination of lornoxicam in presence of its acid-induced degradates either in bulk powder or in pharmaceutical formulations.

Five selective, precise and accurate methods are described for the determination of piroxicam in presence of its acid-induced degradation products. The first method utilizes the first derivative spectrophotometry at 345 nm. The second method is a ratio spectra first derivative spectrophotometric method based on the simultaneous use of the first derivative of ratio spectra and measurement at 358 nm. The third method is chemometric one in which different chemometric methods namely classical least squares (CLS) method, principle component regression (PCR) method and partial least squares (PLS) method were applied for the determination of piroxicam. The fourth method is a densitometric one, after separation on silica gel plate using chloroform: methanol (95:5 v/v) as mobile phase and the spots were scanned at 330 nm. The fifth method is RP-HPLC using acetonitrile: phosphate buffer pH 3 (30:70 v/v) as mobile phase at a flow rate of 1ml/min and UV detection at 240nm. These methods are suitable as stability indicating methods for the simultaneous determination of piroxicam in presence of its acid-induced degradation products either in bulk powder or in pharmaceutical formulations.