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Successive resolution technique of quaternary mixture of Aceclofenac and Diacerin in presence of their degradation products using different wavelength regions

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A novel comparative study of smart spectrophotometric methods for the simultaneous determination of a binary mixture of Aceclofenac (ACE) and Diacerin (DIA) in presence of Diclofenac Sodium (DIC) and Rhein (RH), the degradation products and active metabolites of ACE and DIA, respectively was performed without preliminary separation steps. Where, RH could be eliminated from DIA at wavelength region (460-485 nm) using constant multiplication coupled with Spectrum Subtraction method (CM-SS) without any contribution from the other two components (ACE and DIC), while ACE could be resolved from its degradation product (DIC) at wavelength region (200 nm- 320 nm) using Concentration Subtraction Method (CSM). The linearity, accuracy and precision ranges of these methods were determined and validated as per ICH guidelines. Moreover, the specificity was checked by analyzing synthetic mixtures of both drugs with their degradation products. The two methods were applied for the determination of the cited drugs in pharmaceutical formulation. Results for the proposed methods were statistically compared with those obtained by applying a reported method for the drugs and showed that there is no significant difference between the proposed methods and the reported one regarding both accuracy and precision.

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