Synchronous UPLC Resolution of Aceclofenac and Diacerin in Their Powdered Forms and Matrix Formulation: Stability Study

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Abstract

Accurate, rapid and selective reversed phase ultra-performance liquid chromatography method with UV detection has been established and validated for the synchronous determination of aceclofenac (ACE) and diacerin (DIA) in the occurrence of diclofenac sodium and rhein, their main degradation products, respectively. Chromatographic separation was accomplished using Inertsil C-18 column (50 Ĭ 2.1 mm i.d., 1.7 εm particle size) in isocratic mode, with mobile phase consisting of 20 mM ammonium acetate buffer:acetonitrile in the ratio of 42:58 (v/v), pH adjusted to 3.00 by using 10% acetic acid, the flow rate of 0.25 mL/min and UV detection was performed at 265 nm. The retention times were 2.00 +/ī 0.24, 2.69 +/ī 0.19, 4.00 +/ī 0.23 and 5.24 +/ī 0.25 min for DIA, rhein, ACE and diclofenac sodium, respectively. Excellent linearity was shown over a range of 1.0ï 150.0 εg/mL and 0.5ï87.5 εg/mL with mean percentage recoveries of 98.87 Ñ 1.19 and 98.84 Ñ 1.08 for ACE and DIA, respectively. Parameters of precision and accuracy of the method meet the established criteria. The obtained RSD values were quite low and indicate good reproducibility of the method. Thus, the developed method can be used for the combined dosage form analysis and its chemical stability studies.

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