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Stability indicating RP-HPLC method for simultaneous estimation of Diclofenac potassium, Paracetamol and Methocarbamol

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A simple, specific, selective and accurate stability-indicating reversed phase high performance liquid chromatographic method was developed for the simultaneous determination of Diclofenac potassium, Paracetamol and Methocarbamol. An isocratic RP-HPLC was achieved on younglin HPLC system using Varian C18 (250 X 4.6 mm i.d, 5 µm particle size) column with the mobile phase containing mixture of Methanol:water (80:20 v/v). The flow rate was 0.8 ml/min and the eluent was monitored at 272nm. The retention times of Diclofenac potassium(DIC), Paracetamol(PCM) and Methocarbamol(MET) were found to be 3.51, 6.42 and 9.90 min respectively. The linearity was established for DIC, PCM and MET in the range of 10-60µg/ml, 65-390µg/ml, 100-600µg/ml respectively. The percentage recoveries of DIC, PCM and MET were found to be in the range of 99.73%±0.109, 99.59%±0.085 and 99.50%±0.16 respectively. The LOD for DIC, PCM and MET were found to be 1.10, 5.28 and 9.38µg/ml respectively, while LOQ were 3.42, 29.12 and 17.13 µg/ml respectively. All three drugs were subjected to acid, alkali, oxidation, and dry heat degradation. The degradation studies indicated DIC, PCM and MET showed degradation in acid, alkaline, H₂O₂, and in dry heat condition. The degradation products of DIC, PCM and MET were resolved well from the pure drug with significant differences in their retention time values. The developed method is stability indicating and separate degradants and can be used to determine the stability of samples. The proposed method was successfully applied to the determination of DIC, PCM and MET market formulation.

Biography

Nikunj Patel has completed his Bachelor of Pharmacy from Kalol Institute of Pharmacy (Gujarat University) and Master (Pursuing) from Gujarat Technological University.

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