HPLC and TLC-Densitometric Methods for the Determination of some Antimigraine Drugs in Bulk Powder and in Pharmaceutical Preparations

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Abstract

Two simple and accurate chromatographic methods were developed for the determination of zolmitriptan, and sumatriptan in raw material and in tablets. The first method uses isocratic high performance liquid chromatographic (HPLC) method. Analysis was performed on Agilent Zorbax C18 column using a mobile phase consisting of phosphate buffer pH3: acetonitrile: methanol (2:1:1, v/v/v) with a flow rate of 0.75 ml/min and UV detection at 253 nm. The second method uses thin-layer chromatographic (TLC) separation of sumatriptan, zolmitriptan and eletriptan from their impurities followed by densitometric measurements of drug spots at 254 nm. The separation was carried out on silica gel 60 F254 using chloroform: ethylacetate: methanol: ammonia (72:10:18:2, v/v/v/v) as mobile phase. The methods were validated according to ICH guidelines and the acceptance criteria for linearity, accuracy, precision, specificity and system suitability were met in all cases. The methods were linear in the range of 10–40 μg/ml and 10–50 μg/ml for zol. and sum. respectively by HPLC method and in range of 1–20 μg/spot, 1–20 μg/spot and 1–10 μg/spot for ele., sum. and zol. respectively by TLC method. The proposed methods were successfully applied for the determination of zol., sum. and ele. in bulk and tablets forms. The results were compared statistically at 95% confidence level with reported methods. There was no significant difference between the mean percentage recoveries and precision of the methods.