Simultaneous determination of valsartan, amlodipine besylate and hydrochlorothiazide using capillary zone electrophoresis (CZE)

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Abstract

A capillary zone electrophoresis method was developed for the simultaneous determination of valsartan (VAL), amlodipine besylate (AML) and hydrochlorothiazide (HCZ) in their combined tablets. Separation was achieved on a fused silica capillary by applying a potential of 15 kV (positive polarity) and a running background electrolyte containing 40 mM phosphate buffer at pH 7.5 with UV detection at 230 nm. The samples were injected hydrodynamically for 3 s at 0.5 psi and the temperature of the capillary cartridge was kept at 25 °C. Pyrazinoic acid was used as an internal standard. The method was validated according to ICH guidelines regarding specificity, linearity, limits of detection and quantitation, accuracy and precision, (Supplementary materials, Table S2). The method showed satisfactory linearity in the ranges of 10-200, 2-20 and 2-20 μg mL-1 with LODs of 1.82, 0.39, 0.65 μg mL-1 and LOQs of 5.51, 1.17, 1.96 μg mL-1 for VAL, AML and HCZ, respectively. The proposed method was successfully applied for the analysis of the studied drugs in their laboratory prepared mixtures and co-formulated tablets. The results were compared with reported methods and no significant differences were found. The proposed method can be used for quality control of the cited drugs in ordinary laboratories.