Dual Separation Mode for Simultaneous Determination of Antihypertensive Drug Combinations by High-Performance Liquid Chromatography

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Abstract:

A simple, reproducible and efficient dual separation mode high performance liquid chromatographic (HPLC) method was developed for simultaneous determination of antihypertensive drug combinations including; hydrochlorothiazide (HCTZ), valsartan (VAL), amiloride (AML) and captopril (CAP). The newly developed PlatinumTM column, which provides a dual-mode separation with its polar and non-polar sites, was used for rapid separation of these co-administered drugs. Good resolution was obtained when PlatinumTM column was used compared with C18 column. Additionally, simple isocratic mode with mobile phase containing methanol and 0.02 mole L\(^{-1}\) phosphate buffer adjusted to pH 3.0 (45:55, v/v) was used for separation. The flow rate was 0.5mLmin\(^{-1}\) and effluent was monitored at 270 nm. All the investigated drugs were completely separated within less than 6 min. The linearity range obtained for the developed HPLC method was 0.5–100 μgmL\(^{-1}\) with detection limits of 0.13–1.2 μgmL\(^{-1}\) for all the studied drugs. The method was validated in accordance with the requirements of ICH guidelines and shown to be suitable for -2- intended applications. The method was successfully used for determination of the studied drugs in pure form and pharmaceutical dosage forms without prior need for separation. The method is valuable for quality control laboratories for simultaneous determination of these co-administered antihypertensive drugs in binary, ternary and quaternary mixtures.

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