Spectrophotometric Determination of Lisinopril Dihydrate, Ramipril and Fosinopril Sodium Through Ion-Pair Formation and Charge Transfer Complex Formation Methods.

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Abstract

Two spectrophotometrical methods were developed for the determination of some angiotensin converting enzyme inhibitors (ACE inhibitors), namely, lisinopril dihydrate, ramipril and fosinopril sodium in pure and dosage forms.

The first method is based on the reaction of basic nitrogenous compounds (lisinopril, ramipril and fosinopril ) with an acidic dyes (bromothymol blue and bromophenol blue) in presence of McIlvaine buffer solution pH 2.2 to form colored ion-pair salts which could be extracted into chloroform. Beer’s law is obeyed over a concentration range of (20-100), (5.0-40) and (8.0-80) µg / ml for lisinopril dihydrate, ramipril and fosinopril sodium, respectively, for the method using bromothymol blue, and (80-240), (8.0-40) and (20-120) µg / ml for lisinopril, ramipril and fosinopril, respectively, for the method using bromophenol blue.

The second method is based on reaction of lisinopril dihydrate, ramipril and fosinopril sodium as n-electron donor with 2,5- dichloro-3,6- dihydroxy-p-benzoquinone (p-CA) and 2,3- dichloro-5,6-dicyano-p- benzoquinone (DDQ) as π-acceptors to give highly colored complex species. The colored products could be used for spectrophotometric determination of each drug using p-CA and DDQ at 530 and 460 nm, respectively. Beer’s law is obeyed over a concentration range of (40-160), (40-240) and (40-240) µg / ml for lisinopril dihydrate, ramipril and fosinopril sodium, respectively, for method using p-CA, and (24-200), (40-320) and (24-240) µg / ml for lisinopril, ramipril and fosinopril, respectively, for method using DDQ.

The methods were sensitive, precise and applicable for the determination of the drugs in pharmaceutical dosage forms.

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