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Validated eco-friendly chromatographic methods for simultaneous determination of sacubitril and valsartan in spiked human plasma and in pharmaceutical formulation

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Two eco-friendly chromatographic approaches are developed for simultaneous quantification of sacubitril (SAC) and valsartan (VAL) in combined formulation. The first method depended on isocratic HPLC separation of the two medications on the reversed phase InertsiL ODS-3 column C18 (5 μ m, 150 mm × 4.0 mm, i.d.) at ambient temperature utilizing a green mobile phase consisting of methanol:ethanol:water (40:30:30, by volumes) +0.1% triethyl amine, pH 3.5 with UV detection at 267 nm. Linearity was attained for both drugs at concentration ranges 1–300 μ g.mL–1 in tablets formulation and 0.25–50 μ g.mL–1 in spiked human plasma. Second method was HPTLC which based on separation of the two analytes with densitometric measurements of their resolved spots at 260 nm. Complete separation was performed on HPTLC plates (10 cm × 10 cm), 0.1 mm nano silica gel with particle size 6–9 μ m F254 (Merck) using ethyl acetate:methanol:glacial acid (9:1:0.1, by volumes) as a green mobile phase. The data of linear regression analysis was used for the regression line in concentration range of 1.5–4.5 and 0.8–4.5 μ g.spot–1 for sacubitril and valsartan, respectively and 9–75 ng.spot–1 for both drugs in spiked human plasma.

Recent Publications

- 1. Mohamed K Abd El-Rahman, Amal M Abou Al-Alamein, Ezzat M Abdel-Moety and Esraa M Fawaz (2017) Integrated gold-thiol based potentiometric sensors for *in situ* dual drug-protein binding studies on naproxen/diphenhydramine salts model. Journal of the Electrochemical Society 164(14):H1013-H1020.
- 2. Maya S Eissa and Amal M Abou Al Alamein (2018) Innovative spectrophotometric methods for simultaneous estimation of the novel two-drug combination: sacubitril/valsartan through two manipulation approaches and a comparative statistical study. Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy 193:365-374.
- 3. Amal M Abou Al Alamein (2018) Validated eco-friendly chromatographic methods for simultaneous determination of sacubitril and valsartan in spiked human plasma and in pharmaceutical formulation. Journal of Applied Pharmaceutical Science 8(02):011-017.
- 4. Amal M Abou Al Alamein, Ahmed S Saad, Maha M Galal and Hala E Zaazaa (2018) Novel green potentiometric method for the determination of lidocaine hydrochloride and its metabolite 2, 6-dimethylaniline; application to pharmaceutical dosage form and milk. Electroanalysis 30(8):1689-1695.
- Amal M Abou Al Alamein, Ahmed S Saad, Maha M Galal and Hala E Zaazaa (2018) A Comparative study of different chromatographic techniques for determination of toxic impurities of some commonly used anesthetics. Journal of Planar Chromatography - Modern TLC 31(4):280-289.

Biography

Amal Mahmoud Abou Al Alamein has completed her PhD and Postdoctoral studies from Cairo University, Faculty of Pharmacy. She has academic experiences in teaching analytical chemistry courses for undergraduates and post graduates. Her research interest is based on method development and validation of different analytical techniques as: Chromatography; UV-Spectrophotometry; Chemometrics and Potentiometric methods with ion selective electrodes (ISEs) and screen-printed electrodes (SPEs) incorporated with carbon nanotubes as potentiometric sensors. She has published more than 20 papers in reputed journals and has been serving as a reviewer and editorial board member in international scientific journals.

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