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Analytical techniques for quantifying the Ertapenem sodium with a look at green chemistry

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Ertapenem sodium is the polar and ionizable compound. Thus, the most suitable for such drug is to develop a method for Hydrophilic Interaction Chromatography (HILIC). On the other hand, the RP-HPLC is considered as the analysis technique used for quantification of substances and new column are often introduced for compounds separation. Two new analytical methods have been developed. The RP-HPLC method was performed on a Waters LC system, with an Agilent™ Zorbax Bonus-RP (4.6×150 mm, 5 μm) column and the mobile phase was Water:Ethanol 80:20 v/v. While the HILIC method was performed on an ultra-high performance liquid chromatography Shimadzu with stationary phase Phenomenex™ HILIC Kinetex (4.6×100 mm, 2.6 μm) column and the mobile phase was Acetonitrile:Water 88:12 v/v. In both methods, 0.1% formic acid was added in mobile phase and was performed isocratically. The validation parameters were in accordance with ICH specifications and demonstrated accuracy, precision, selectivity, robustness and linearity. Analytical curves were constructed and was evaluated by ANOVA ($y=23043x-38525$, $R^2=0.9999$ RP-HPLC and $y=29928x-547879$, $R^2=0.9994$ HILIC). The robustness was evaluated by making parameters small alterations simultaneous and was evaluated by the Plackett-Burman. The results show that the method validity is maintained. The methods here described have economic advantage as well as features an eco-friendly focus. This work was developed with environmental conscience, always looking to minimize the possible generated organic waste, which is of utmost importance to the environment.

Biography

Tahisa Marcela Pedroso has completed her Pharmaceutical honors degree with merit from the Programa Universidade Para Todos (PROUNI) rated best pharmacy student at the Centro Universitário Central Paulista, São Carlos, Brazil in 2009. She has completed her Master's degree in Pharmaceutical Sciences from the Universidade Estadual Paulista, Brazil. She is currently conducting research with the antimicrobial Ertapenem sodium for the development of PhD research at the Faculdade de Ciências Farmacêuticas, Brazil and PhD exchange student at the University of Ghent-Ugent, Belgium.

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