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An eco-friendly direct injection HPLC method for the determination of Levodopa and Carbidopa in human serum using a single protein-coated column

Samy Emara, Rania Salah El Din, Ranidla Waleed and Dalia Abdelrahman
Misr International University, Egypt

A simple, rapid and environmentally friendly direct injection high-performance liquid chromatography (HPLC) method for the determination of levodopa (LD) and carbidopa (CD) in human serum has been developed and validated. The method was based on extracting and separating LD and CD from human serum using a single protein-coated TSK gel ODS-80 TM analytical column (50×4.0 mm i.d., 5 µm). The protein-coated column functioned in two chromatographic modes: Size-exclusion chromatography [i.e., solid-phase extraction (SPE) for serum proteins] and reversed-phase chromatography for the final separation of LD and CD. SPE and HPLC separation were carried out simultaneously with a green mobile phase consisting of acetate buffer (0.1 M, pH 2.4) at a flow rate of 1 mL/min and at ambient temperature. The eluents were monitored fluorometrically at emission and excitation wavelengths of 320 and 270 nm, respectively.

Biography

Samy Emara is a Professor of Pharmaceutical Chemistry and Vice Dean of Community Services and Environment Development Affairs at Faculty of Pharmacy, Misr International University (Egypt). Emara has completed his PhD experiments in cooperation with Hiroshima University (Japan) from April 1991 to July 1993 and earned the degree in December 1993 from Assiut University (Egypt). His research interests lie in the area of direct injection HPLC techniques for drug monitoring in biological fluids using protein-coated columns. In recent years, he has focused on mass spectrometric techniques for single cell metabolomics in collaboration with Single Cell Mass Spectrometry Laboratory (Riken, Osaka, Japan).

emara_miu@yahoo.com

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