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Extraction and determination of Ertapenem antibiotic in forensic matrices by solid phase extraction followed by LC-MS

Antibiotics are pharmaceuticals which are used to cease and cure bacterial infections. Due to their rapid consumption it leads to addiction following antibiotic abuse. Cases have been reported for antibiotic overdose. Since not having certain protocols to detect such cases we have developed a method to detect such antibiotics from post mortem samples. A solid-phase extraction based on two organic solvents followed by isocratic liquid chromatography and mass spectroscopy with 242nm UV-vis detection was achieved for determination of ertapenem antibiotic, in forensic samples. Methanol was selected as the supported liquid membrane. The elution was done by formic acid. Chromatographic separation of drug was achieved on a Hypersil ODS C-18 150mm X 4.6mm,

5µm column using a mobile phase consisting of a binary mixture of Phosphate buffer (4.5590gm of Potassium dehydrogenate orthophosphate in 1.0 liter Water and pH was adjusted to 7.5) and Methanol in the ratio of 60:40v/v. To evaluate the capability of the proposed method in the analysis of biological samples, three different forensic samples were analysed under the optimal conditions. The relative recoveries of the ertapenem in three different forensic samples were above the range of 70%. Thus, the developed Liquid Chromatographic method offers symmetric peak shape, good resolution and reasonable retention time for drug. Linearity, accuracy and precision were found to be acceptable over the concentration range of 10-40microgram/ml for ertapenem.

Biography

Jaskaran Singh has completed his PhD at the age of 28 years from Amity University as a INSPIRE Fellow, Ministry of Science and Technology, DST, Govt. of India. He is the Assistant Professor of Forensic Science in a Lovely Professional University, Punjab. He has published more than 8 papers in reputed journals and 1 patent.

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