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Biography

Lokesh Kumar Gupta has completed his PhD at the age of 25 by researching in University of Delhi and Ch. CS University Meerut, India. He is an analytical research scientist and serving as Chief Manager of Analytical R&D team with TEVA API (a world leader in generic pharmaceuticals) in India, focusing on analytical research/methods development, spectroscopic characterization of organic pharmaceuticals, technology validation, impurity isolation & characterization etc. He also works for ensuring the laboratory compliance across all sites of TAPI, around the globe. He is participating and discussing his commended research in several national/international seminars/conferences. He had published more than 42 papers in peer reviewed reputed journals of chemistry & spectroscopy and serving as an eminent referee for several journals of international repute.

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Note:

MODERNIZATION IN LIQUID CHROMATOGRAPHY: MANUAL TO GREEN SEPARATIONS

From decades chromatography has been accepted as a key analytical tool for understanding and characterization of molecules in chemistry, the level of world-wide research activity in this field promises that these capabilities will continue to improve, rapidly. Over the period of time sensitivity of chromatography tools have been improved to work at micro level and in more depth, ultimately become a faster research tool; such tools now being used as process analytical tools (PAT) giving online understanding of characteristics of a molecule during research/development and in production. Same time their utilization has widen up by coupling these tools with mass spectrometry and NMR etc e.g. (LC-MS-MS, LC-NMR ...etc.) Primary Liquid chromatography was defined in the early 1900s by the work of the Russian botanist, Mikhail S. Tswett. Today, liquid chromatography, in its various forms, has become one of the most powerful tools in analytical chemistry. The acronym HPLC, was coined in 1970, it was equipped with a pump (~35 bar). The early 1970s saw a tremendous leap in technology with wearing pressure >400 bar and incorporated improved injectors, detectors, and columns. HPLC really began to take hold in the mid-to late-1970s. With continued advances in performance during this time the acronym HPLC remained the same, but the name was changed to high performance liquid chromatography (HPLC). HPLC is now one of the most powerful tools in analytical chemistry. It has the ability to separate, identify, and quantitate the compounds that are present in any sample it can be dissolved in a liquid. Today, compounds in trace concentrations as low as parts per trillion (ppt) may easily be identified. HPLC now has become the backbone for the analysis of pharmaceuticals, food, nutraceuticals, cosmetics, environmental matrices, forensic samples & industrial chemicals. In the starting of 21st century, further advancement in HPLC came out in terms of UPLC (Ultra Performance.....) (>1000 bar), faster separation with improved resolution & speed. This technology represented a candid revolution and leadership with excitement and new courage in analytical science with confidence and reliable/reproducible results. One step ahead towards green chemistry, primary concern for elimination or major reduction in the use of organic solvents in chromatography opened the doors to another technology: Supercritical CO2 extraction, where major part of the mobile phase is CO2 (non-toxic, non-flammable and physiologically compatible). Compared to other techniques, use of SFE/SFC, the compounds are cleaner, efficiency is higher, selectivity is better, yield is higher and costs are lower apart from being the Green Technology, it is leading separation/purification technology. In this review, I had evaluated and focused on advancement and updates in LC field, with respect to technology update & applications.