

World Congress on

CHROMATOGRAPHY AND SEPARATION SCIENCE

&

International Conference and Exhibition on

SATELLITE AND SPACE MISSIONS

November 12-13, 2018 | Rome, Italy

Anupam Maurya et al., J Chem Tech App 2018, Volume 2

LIQUID-LIQUID PARTITION CHROMATOGRAPH: AN EFFICIENT SOLID SUPPORT LESS CHROMATOGRAPHIC TECHNIQUE FOR THE SEPARATION OF BIOACTIVE PHYTOMOLECULES

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Phytomolecules are secondary metabolites of plants origin which have various biological activities and became key source for the discovery of new drugs. Last 20 years, almost 50% drugs directly or indirectly derived from natural products for Human welfare. All phytomolecules, often exist as a very complex mixture from which the product of interest must be isolated and purified, separation of these molecules from the plants is very tedious and time taking. At present, the used adsorbents SiO₂ and Al₂O₃ are not chemical inert. Separation of natural products on alumina or silica gel sometimes results in recovery of only 70-90%. Sometimes severe losses of valuable materials result because of irreversible adsorption on a solid support. In addition, isolation of artifacts has also been reported due to chemical reaction of the substrates with solid phase adsorbents. Introduction of Liquid-Liquid Partition Chromatography (CCC, CPC etc.) provided new dimension in area of separation, isolation and purification of phytomolecules, in which both stationary and mobile phase are liquid. The separation of Compounds in this technique is based on their Partition Coefficient (K), in which the compounds distribute between biphasic solvent systems. Techniques having number of advantages when it compared with the more traditional liquid-solid separations method: (i) It can be used in both normal and reverse phase; (ii) It is less time taking & economic; (iii) No irreversible adsorption (iv) Recovery more than 90%; (v) Tailing minimized; (vi) Low risk of sample denaturation; (vii) Low solvent consumption & High loading capacity. With these above said advantages, techniques are gaining popularity as modern separation technique.

We have also successfully applied Fast Centrifugal Partition Chromatography (FCPC) for the separation and isolation of various phytomolecules like iridoids, nitrile glycosides, triterpenoids, alkaloids and steroidal glycosides & glycoalkaloids. The detail procedures of this method will be discussed in WCCSS 2018.

 Note:

BIOGRAPHY

Anupam Maurya has completed his PhD at the age of 31 from CSIR-CIMAP India. Currently, he is working as a Scientist (Scientific Officer) at Pharmacopoeia Commission for Indian Medicine and Homoeopathy, India. He has published more than 24 papers in reputed journals and granted one US patent. His current citation of publication is 238 and H-index is 10. He has carried substantial work on the isolation of Phytomolecules by Partition Chromatographic Technique and development of analytical methods for Indian Medicinal Plants.

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