

Developing a start of art for improvising the chromatography analysis of suspension sample for higher precision and accuracy

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A recent development in the formulation science has come up with the novel formulation designed to serve the purpose. The formulations are aimed at a high loading of the active compound, lower viscosity, easier dispersion, and higher stability. Among several formulations, the suspension formulation is quite challenging for the chromatography analysis as they are not true solutions. The suspension is the dispersion of solid particles in the aqueous or non-aqueous medium. A major issue that arises in the suspension samples is that pipetted sample concentration varies with respect to time and the point of drawing the sample. Hence, the accuracy precision for suspension ranges from 85 – 115 %. Even though common techniques were available like allowing the solution to stand for 30 min upon stirring or separating the suspended particles by centrifugation, it doesn't yield accurate results. In order, the present review focused on utilizing various methodologies to attain higher accuracy and precision in the chromatography analysis.

- Reducing the Size: Breaking the stronger aggregation is the easier way to reduce the size of clusters. The stronger aggregation can be avoided by introducing the shear force in the solution, by means of breaking the suspended solids into smaller ones
- Altering the surface property: The property of the suspension can be easily altered by utilizing the polymers or surfactants
- Preparative directed Analytical LCMS: A technique of analyzing the whole sample in preparative HPLC and diverting the fraction of active compound into Analytical quantification or LCMS
- Choosing the quantitation method: The concentration varies with the calibration point and quantitation method used such as the Linearity curve method or Area normalization method.

The present review provides insights towards the potential possibilities of reducing the suspension sampling error, thereby improvising the precision and accuracy in the chromatography techniques.

Biography

Dr. Balaji. A P B has his expertise in LCMS – TQ, SQ, Preparative HPLC, Analytical coupled Preparative HPLC, Mass directed Preparative HPLC, conventional HPLC, UHPLC, Interchim- Puriflash instruments, Rapid qualitative, and quantitative analytical methods Nanoencapsulation/ Nanoformulation of active compounds, toxicity studies on target and non-target organisms and biosafety studies. A consultant in providing ecosafety solutions and industry-oriented training workshops. He has published more than 11 papers in reputed journals and has been serving as a Reputed Reviewer of The Science of Total Environment – Elsevier.