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RP-HPLC method for simultaneous estimation of ipratropium bromide and levosalbutamol in pharmaceutical metered dose inhalers

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An accurate, sensitive, precise, rapid and isocratic Reversed-Phase HPLC, (RP-HPLC) method for simultaneous estimation of Ipratropium bromide and Levosalbutamol in the bulk drug and in the pharmaceutical metered dose inhalers has been developed and validated. The best separation was achieved on a 250 mm × 4.6 mm i.d., 5 µm particle, Inertsil ODS 3V-RP C18 column with Acetonitrile as the organic modifier and Di-Potassium Hydrogen Phosphate [0.03M] in water with pH 3.2 adjusted with Ortho-Phosphoric Acid (0.1% v/v) in the proportion of [30:70 v/v] as mobile phase at a flow rate of 0.8 mL min−1. UV detection was at 242 nm. Retention times were found to be 5.206 min. for Ipratropium bromide and 7.016 min. for Levosalbutamol.

The response was a linear function of concentration over the range of 2.00 to 6.00 µg/ml, and 5.00 to 15.00 µg/ml respectively with correlation coefficient of 1.000 for Ipratropium Bromide and 0.994 for Levosalbutamol respectively. The percentage assay Ipratropium bromide and Levosalbutamol were found to be 99.87 %, and 101.42 % respectively. The Limit of Detection (LOD) for Ipratropium bromide and Levosalbutamol were found to be 1.27 µg/ml and 4.41µg/ml respectively. The Limit of Quantification (LOQ) for Ipratropium bromide and Levosalbutamol were found to be 3.81µg/ml and 13.23µg/ml respectively. The excipients present in the formulation were not interfered with the assay. The method is suitable for application in quality-control laboratories, because it is simple and rapid with good accuracy and precision.

Biography

Ravi Vankudoth has completed B.Pharmacy in Pratishta Institute of Pharmaceutical Sciences, Suryapet and pursuing M.Pharmacy, in SSJ College of Pharmacy, JNTUH. He has published various Papers in Reputed Journals; presented many posters in National and International Seminars.

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Determination of ionization yield (degree of ionization) using tandem mass spectrometry

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One of the ways to quantitate using mass spectrometry (MS) is by selected reaction monitoring (SRM), which can be done without using isotope labelled standards. It is well known that under a given set of conditions in a mass spectrometer, different molecules ionize to different extents in gas phase, giving rise to varied ionic yields that can be noted from their corresponding mass spectrum. This suggests that various types of molecules possess different degrees of ionization, subject to their physicochemical properties. For this study, simvastatin (SV), a cholesterol-lowering pro-drug and its beta-hydroxy acid form, simvastain acid (SVA), are chosen to determine their degrees of ionization.

Usually quantitation using SRM data is performed by plotting and comparing calibration curves of standards of different known concentrations and the data obtained from the real-world sample. Herein, in addition to this usual procedure of drawing such graphs, the peak area/intensity values obtained from SRM runs of various concentrations of analytes will be utilized to estimate the ionization yield. In other words, it is attempted to define 'degree of ionization' by designing a method of calculation using the concentrations and the values of peak area/intensity obtained from SRM runs.

The SRM experiments are carried out in an electrospray ionization - tandem quadrupole (Quattro Micro, Waters). The samples are introduced into spectrometer by reverse phase liquid chromatography (C-18 column). For SV, the SRM runs are carried out in positive ion polarity, whereas data acquisition for SVA is done in both positive and negative ion modes.

Biography

Richa Guleria has completed her M.Sc. in Biotechnology from Amity University, Noida in year 2010. Presently, she has been working in Department of Gastroenterology and Human Nutrition Unit at All India Institute of Medical Sciences, New Delhi, since November 2011.

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