# ABSTRACT

## SEPARATION OF SODIUM SACCHARIN AND SODIUM BENZOATE WITH HIGH PERFORMANCE LIQUID CHROMATOGRAPHY USING PARTICULATE COLUMN RP 18 AND MONOLITHIC COLUMN RP 18

Conventional particle-packed and monolithic columns were applied for the separation of sodium saccharin, sodium benzoate, and citrate. The aim of the present work was to evaluate the chromatographic properties of Chromolith and LiChrospher columns for the separation of sodium saccharin and sodium benzoate, including separation from citrate. The separation was performed on a LiChrospher RP 18 (5 µm particle size, 250 mm x 4.6 mm) and Chromolith RP 18 (100 x 4.6 mm). LiChrospher RP 18 column was used with a flow rate of 1 mL/minute. The separation was accomplished within 7.5 minute using mobile phase composition of metanol:Phosphate buffer pH 4 ± 0,05 (42:58) with pressure drop 174 bar. The analysis time was decreased by about 3-folds on monolithic column at a flow rate 3 mL/minute with mobile phase composition of metanol:Phosphate buffer pH 4 ± 0,05 (25:75) with pressure drop 154 bar while maintaining sufficient resolution between sodium saccharin and citrate. The linearity of calibration curves for sodium saccharin and sodium benzoate in each optimum mobile phase compotition were checked over the concentration ranging from 10 to 60 ppm. Correlation coefficients achieved by LiChrospher were about 0.9992 to 0.9999 for sodium saccharin and 0.9997 to 0.9999 for sodium benzoate. Correlation coefficients achieved by Chromolith were 0.9999 for either sodium saccharin or sodium benzoate. To ensure assay precision, within day repeatability (n = 10) were assessed at 3 concentration levels for the conventional (LiChrospher) as well as Monolithic (Chromolith) columns. The precision for both retention time and peak area was investigated over 3 concentration and found to be equal or slightly better on Chromolith compared to the LiChrospher column. The accuracy of the method were tested by determination of recovery using sodium saccharin and sodium benzoate mixed with citrate. Both methods showed good linearity and recovery and were found to be suitable for the analysis of sodium saccharin and sodium benzoate.

Keywords: HPLC, Chromolith, Saccharin, Benzoate.