Study on the retention behavior of pharmaceuticals in hydrophilic interaction liquid chromatography

Ashraf S Rasheed, Marwah A Abbas and Ameen W Qassim
University of Baghdad, Iraq

Hydrophilic interaction liquid chromatography (HILIC) performed on zwitterionic stationary phases (ZIC-HILIC) is an upcoming separation technique with rapidly increasing importance. It is suitable for the separation of hydrophilic and ionic substances. These ZIC-HILIC materials can be operated in different separation modes depending on the mobile phase composition. Notwithstanding the availability of numerous works of separation ranitidine hydrochloride and famotidine in HPLC, no investigation has been carried out for the retention characteristic of ranitidine hydrochloride and famotidine in ZIC-HILIC mode. The second goal of our work is to investigate the influence of chain length between the charges (one methylene group ZIC1 and five methylene groups ZIC5). Two zwitterionic stationary phases with largely corroborated capacities were obtained by attachment sulfobetaine monomers ($H_2C=CHC_6H_4CH_2N^+(CH_3)_2-CH_2-SO_3^{-}$ and $H_2C=CHC_6H_4CH_2N^+(CH_3)_2-(CH_2)_5-SO_3^{-}$) onto a PS/DVB particles were investigated for chromatographic separation of ranitidine hydrochloride and famotidine. The different chain lengths are used as an investigative tool for the retention behavior of pharmaceuticals ranitidine hydrochloride and famotidine. The retention behavior of ranitidine hydrochloride and famotidine were examined with eluent at various ACN contain, buffer concentrations and pH. The separation mechanism is based on partitioning in reversed phase, hydrophilic interaction liquid chromatography and ZIC ion exchange resulting in a mixed mode for the ranitidine hydrochloride and famotidine.

Biography
Ashraf S Rasheed has done his MSc in Analytical Chemistry, College of Science, University of Baghdad, Iraq. She has done her PhD in Analytical Chemistry from the Faculty of Chemistry, Universität Marburg, Germany in 2014. His current interest of research is to study the retention mechanism in ZIC-HILIC. He has 21 papers published in reputed journals.

Ashraf_analytical@yahoo.com