Retention of some amino acids with 1-butyl-3-methylimidazolium tetrafluoroborate contained mobile phases expressed by simple and multiple linear regression models

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In this work, five solutes, n-carbobenzyloxy-D-phenylalanine, D-tryptophan, and orthro-, meta-, and para-amino benzoic acids, were examined on a reversed-phase column using water-methanol mobile phases without and with ionic liquid modifier 1-butyl-3-methylimidazolium tetrafluoroborate.
Experimental data showed that the modification of eluents by this ionic liquid is really affected on the retention and isolation of these solutes. The mobile phase composition versus chromatographic retention factor was estimated with simple (Soczewinski and Langmuir-type) and multiple linear regression models. The effects of the nature and concentration of methanol and ionic liquid modifier on the chromatographic performance are discussed.
Statistical evaluation of models of chromatographic retention was estimated and analyzed. It is found that proposed models are suitable for prediction of solute retention with 1-butyl-3-methylimidazolium tetrafluoroborate contained water-methanol mobile phases.