Effects of Concentration of Ionic Liquids On Resolution of nucleotides in RP-HPLC

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The chromatographic behaviors of nucleotides (inosine 5'-monophosphate dissodium salt, uridine 5'-monophosphate disodium salt, guanosine 5'-monophosphate disosium salt, and thymine monophosphate disodium salt) on a C18 column were studied with different types of ionic liquids as an additive for the mobile phase in reversed-phase high performance liquid chromatography (RP-HPLC). The four ionic liquids 1-butyl-3-methylimidazolium tetrafuloroborate ([BMIm][BF4]), 1-ethyl-3-methylimidazolium tetrafuloroborate ([EMIm][BF4]), 1-methyl-3-octylimidazolium tetrafluoroborate ([OMIm][BF4]), and 1-ethyl-3-methylimidazolium methylsulfate ([EMIm][MS]) were used. Eluents were composed from water and methanol (90/10 %, vol) and with addition of 0.5-12.0 mmol/L of ionic liquids. Separations of nucleotides were obtained on commercial available octadecyl silica column (4.6×100 mm i.d. and particle size 5 μm). Effects of concentration of ionic liquids on retention and separation of some nucleotides were investigated and discussed. The results showed the addition of ionic liquids has effects on the separation, peaks tailing, and resolution of these compounds.