Effects of Ionic liquids and Columns for Separation 2-chlorophenol and 2,4,6-trichlorophenol in RP-HPLC

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Separation of 2-chlorophenol and 2,4,6-trichlorophenol in RP-HPLC has been studied. The work is aimed at investigating the effect of ionic liquids as modifiers of mobile phases to separation of substances, and additionally to compare results obtained with traditional particle C18, monolithic chromolith, and molecular imprinted polymer (MIP) columns. The ionic liquids, 1-butyl-3-methylimidazolium tetrafluoroborate ([BMIm][BF4]), 1-ethyl-3-methylimidazolium tetrafluoroborate ([EMIm][BF4]), 1-ethyl-3-methylimidazolium methylsulfate ([EMIm][MS]), and 1-octyl-3-methylimidazolium methylsulfate ([OMIm][MS]) were used. The porous polymer monolithic columns (MIP) been prepared by polymerization of methacrylic acid and ethylene glycol dimethacrylate within the confines of chromatographic column in the presence of toluene, dodecanol, and cyclohexanol as a porogenic solvent. The results showed the potential application of ionic liquid as mobile phase additive in liquid chromatography. The advantages and disadvantages of ionic liquids as a mobile phase modifiers in RP-HPLC was discussed in terms of intermolecular interactions.