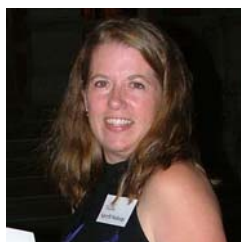


# Youngstown State University Chemistry Seminar Program - Winter/Spring 2006

Friday February 3<sup>rd</sup>, (3:15)  
Our 13<sup>th</sup> Seminar of 2005-6



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***“Ionic Liquids in Separations”***

## Abstract

Ionic liquids have been used as additives in capillary electrophoresis for the separation of polyphenols and shown great promise as novel selectors. A new HPLC stationary phase has been synthesized based on the ionic liquid n-butylimidazolium bromide. Imidazolium was covalently immobilized on a silica substrate through an n-alkyl tether and the retention characteristics of the resulting stationary phase were evaluated systematically. Using 28 small aromatic test solutes and reversed phase conditions, the linear solvation energy relationship approach was successfully used to characterize this new phase. Operated in the reversed phase mode, this new stationary phase shows considerable promise for the separation of neutral solutes and points to the potential for a truly multimodal stationary phase.

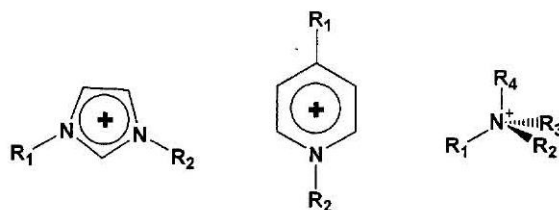


Figure 1. Structures of typical ionic liquid cations.

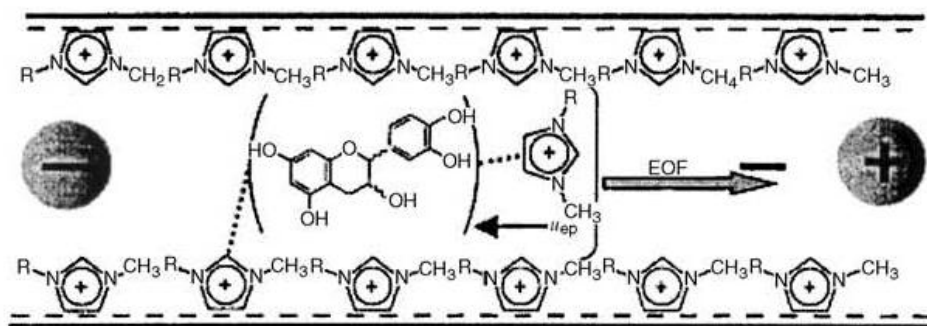


Figure 3. Mechanism of polyphenol CE separation using 1-alkyl-3-methylimidazolium-based ionic liquids in the background electrolyte.<sup>[45]</sup>

Figures from LP1 : Stalcup, A. M.; Cabovska, B.: "Ionic Liquids in Chromatography and Capillary Electrophoresis," *J. Liquid Chrom. & Related Technologies*, **2004**, 27, 1443-1459.