Study the electrochemical redox behavior of Co^{2+} in PF^-_6, $CF_3SO_3^-$, $(CF_3SO_2)_2^-$and BF^-_4 anion containing RTILs

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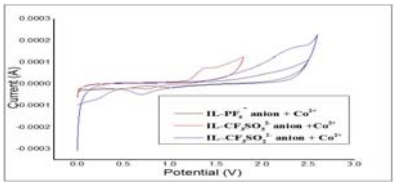
Difference in cell potential depending upon the anionic moiety in similar cation such as BMIM PF^-_6(4V), BMIM$CF_3SO_3^-$ (5V), BMIM $(CF_3SO_2)^-_2$(6V) and BMIMBF^-_4 (4V) makes initiate this work. Effect of anions in RTIL on the electrochemical redox properties of cation mediators was investigated. The following cyclic voltammogram demonstrates redox behavior of Co^{2+}/Co^{3+} varied with various anionic groups containing IL. At first sight, the Co^{2+}/Co^{3+} redox potential found at 1.4V, 1.8 and 2 V for $CF_3SO_3^-$, $(CF_3SO_2)^-_2$, and PF^-_6 anions in IL respectively.



Key words: RTIL, PF^-_6, $CF_3SO_3^-$, $(CF_3SO_2)^-_2$ and BF^-_4, electrochemical studies, $CoCl_2$.