

### Effect of imidazolium-based ionic liquids as refolding additive on disulfide bond protein

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Today, tunable hydrophobicity and polarity of Room Temperature Ionic Liquids (RTILs) leads the expansion of its application in chemical and biological processes.<sup>1</sup> Recently, RTILs are recommended as promising protein refolding additive.<sup>2</sup> In this study, the influence of a series of N'-alkyl-N-methylimidazolium tetrafluoroborate and N'-alkyl-N-methylimidazolium methylsulfate as refolding additive on batch dilution refolding of disulfide bond protein were investigated. Two different disulfide bond protein, lysozyme and laccase were employed as model protein. Refolding yield was proportionally decreased with alkyl chain length of RTILs, and MS-based RTILs were more effective than BF<sub>4</sub>-based RTILs. Among the tested RTILs, 1-butyl-3-methylimidazolium methyl sulphate ([BMIm][MS]) showed the best refolding yield. Consequently, refolding yield was improved 2.5 times and 2 times comparing with refolding of lysozyme and laccase in urea-containing buffer, respectively.