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Abstract	:	A major problem with the prevalent use of alkanolamines in conventional carbon capture technology is their inherent disadvantages, such as the demanding regeneration process, which involves high energy consumption, as well as the formation of toxic byproducts during degradation, which have triggered extensive research into alternative methods. An important area of research has focused on the development of green solvents as viable and sustainable replacements for traditional alkanolamine-based approaches. In this work, two cholinium amino acid-based ionic liquids (ChAAIL) were synthesized via the acid-base neutralization method. ChAAIL moieties were characterized using ATR – FTIR spectroscopy techniques. The high-water content of all ChAAIL ionic liquids confirmed the synergistic hygroscopic effect arising from both cholinium cations and amino acid anions. Thermophysical analysis data consisting of density and viscosity provide a better understanding of the correlation between the above properties and the molecular structure of ChAAIL. A thorough understanding of these novel ionic liquids is crucial for developing a greener and more effective green solvent for carbon capture and mitigation technology.