

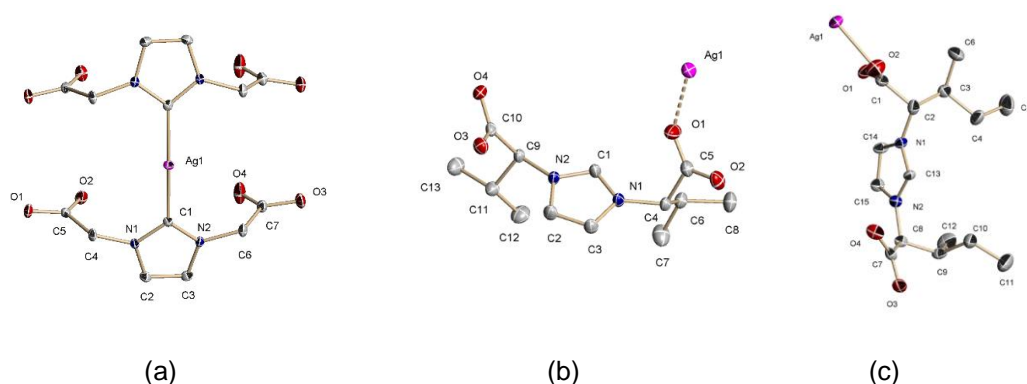
## Water-soluble silver complexes with ligands derived from amino acids (NHC and imidazolium-carboxylate): synthesis and properties

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Water-soluble N-Heterocyclic Carbenes (NHCs) and chiral imidazolium-based carboxylate compounds have played an important role in recent decades.<sup>1</sup> Following our interest in the use of amino-acid derived imidazolium-based carboxylate and NHC ligands,<sup>2</sup> we decided to explore the preparation of new silver complexes. Reaction of imidazolium precursor HIm<sup>R</sup> (R = H, **1a**; Me, **1b**; iPr, **1c** and **1c'**; iBu, **1d**; sBu, **1e** and tBu, **1f**) with Ag<sub>2</sub>O (or AgNO<sub>3</sub>, alternatively) in alkali aqueous solution afforded NHC complexes, {Ag[NHC<sup>R</sup>]<sub>2</sub>}<sup>3-</sup> (R = H, **2a**), {Ag[(S,S)-NHC<sup>R</sup>]<sub>2</sub>}<sup>3-</sup> (**2a-e**) and {Ag[(R,R)-NHC<sup>R</sup>]<sub>2</sub>}<sup>3-</sup> (R = iPr, **2c'**) as colourless solids (X-ray structure of complex **2a** shown in Figure 1a). Conversely, complexes [Ag(Im<sup>R</sup>)] (**3a-f**), where Im<sup>R</sup> is 2,2'-(imidazolium-1,3-diyl)di(2-alkyl)acetate, were prepared by treatment of compounds HIm<sup>R</sup>, **1**, with Ag<sub>2</sub>O in dried methanol. At the solid state (see Figure 1b,c for **3c,e**), they are one- or two-dimensional coordination polymers, in which silver cations are connected via chiral anions with unprecedented coordination modes. Other details about the synthesis, characterization and properties of these compounds will be presented and discussed in this communication.



**Figure 1.** (a) X-ray structure of {Ag[NHC<sup>H</sup>]<sub>2</sub>}<sup>3-</sup> (**2a**). (b) Asymmetric unit of {Ag[(S,S)-Im<sup>iPr</sup>]}<sub>n</sub> (**3c**). (c) Asymmetric unit of {Ag[(S,S)-Im<sup>sBu</sup>]}<sub>n</sub> (**3e**).

### References

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