

EXPLORING THE SCOPE OF IMIDAZOL(IN)IUM-2-DITHIOCARBOXYLATE LIGANDS IN COORDINATION CHEMISTRY AND CATALYSIS

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Despite the widespread use of N-heterocyclic carbenes (NHCs) as neutral, two-electron donors in organometallic chemistry and in homogenous catalysis, only a modest number of reports have looked at their potential to generate other ligand systems. Yet, the facile reaction of NHCs with heteroallenes $X=C=Y$ such as COS, CS₂ or RNCS to afford the corresponding betaines in high yields and purities provides a convenient starting point to generate new heteroatom-based ligands with tailored binding modes.¹ In particular, imidazol(in)ium-2-dithiodicarboxylate zwitterions (NHC•CS₂) are stable, crystalline adducts that can act as κ^2 -S,S' chelating or bridging ligands toward various transition metals such as ruthenium,^{2,3} palladium,⁴ or gold.⁵

In this presentation, we shall disclose the latest results from our laboratory toward the synthesis and characterization of transition metal complexes bearing NHC•CS₂ ligands. We will also discuss their potential applications in catalysis.

References:

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