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Title: Understanding Redox behavior of 3d Transition Metals on the basis of Thio-Salen Ligands

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Keywords: Thio-Salen Ligands

Traditional Ligands Redox Active Ligands Aminophenolates Non-Innocent Ligands

Issue Date: 30-Aug-2018

Publisher: IISERM

Abstract: Redox-active ligands (RAL) recently attracted tremendous research focus since base metal

catalysis can be realized when RAL is electronically tuned with 3d transition metals. Metallosalens have great importance in catalytic reactions because of their redox-active behavior. Despite, the significant amount of research on redox non-innocence of salens, thiosalen have not been investigated thoroughly. We anticipate electronic structure for thiosalen will differ considerably as compared to their salen congeners, because of the high polarizability, less electro-negativity and more covalency of the sulfur atom as compare to oxygen. Herein, we attempt to synthesize multiple 3d-metal complexes of thiosalen and understand their redox behavior of them to bring a straight comparison with salens. Furthermore, the electronic tuning of the coordination environment will be regulated by making appropriate changes on the ligand backbone.

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