

## Transition metal chemistry of hydroxy(–OH)-rich molecules: Syntheses, crystal structures and solution reactivity studies

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Appropriately designed hydroxy(–OH) containing Schiff's base and Mannich base molecules have been recently found to be important for development of the coordination chemistry of a number of metal ions in the biomimetic chemistry of metalloenzymes. In this context, our group has studied the coordination role of these molecules with oxo-V(V), oxo-Mo(VI), oxo-U(VI) and Ti(IV)<sup>1,2</sup>. Reactions of hydroxy(–OH)-rich salicylidene moieties with late transition metal ions such as Co(II), Ni(II), Cu(II) and Zn(II) led to the formation of a variety of mononuclear, dinuclear and tetranuclear complexes bound to alkoxo, phenolate and imine groups. These complexes have been characterized by analytical, spectral and electrochemical methods including single crystal X-ray diffraction studies. A unique feature of some of these complexes is that the –CH<sub>2</sub>OH function of the hydroxy-rich molecule does not coordinate with the metal ions. This feature is in contrast with that observed in the complexes of oxo-V(V), oxo-Mo(VI), oxo-U(VI) and Ti(IV). The complexes have been subjected to reactivity studies. These complexes exhibit core-conversion properties. Conversion of the mononuclear complex to the corresponding tetranuclear counterpart and vice versa is observed in the case of copper complexes. These interconversion reactions have been studied with other complexes as well. These complexes undergo trans-metallation reactions.

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### References

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