Salen-derived multi-metallic complexes

J. Pradegan[1], K. M. Fromm[1]*

[1]Department of Chemistry, University of Fribourg, Fribourg, Switzerland

Salen is one of the most studied ligands in chemistry, notably for its straightforward synthesis and its ability to coordinate a variety of metal ions.[1] This Schiff base compound has a N_2O_2 chelate site allowing the coordination of one metal ion. Salen is an interesting ligand in that it can be functionalized providing a panoply of new ligand structures. The main application of salen-metal complexes is in the field of catalysis,[2] the most well-known being the Jacobsen catalyst for its enantioselective epoxidation of alkenes.[3]

In our studies, we aim at synthesizing multi-metallic complexes with two or three different metal ions. To achieve this goal, salen can be functionalized with glycol chains creating e.g. a O_3O_3 recognition site for a second metal ion. The combination of different metal ions can provide enhanced chemical and biological properties.[2] For instance, the synthesized multi-metallic complexes could be used as mixed metal oxide precursors or show potential synergic antibacterial properties.[4]

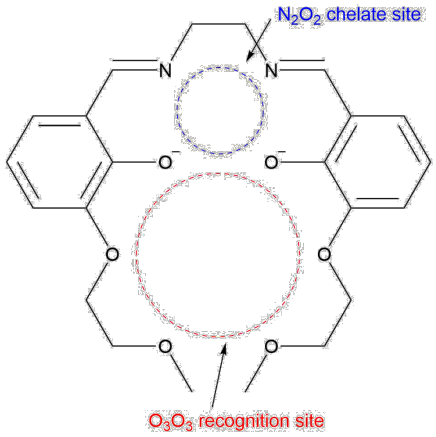

Fig. 1 : Representation of salen-derived ligand with N_2O_2 chelate and O_3O_3 recognition sites

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