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Beyond Heterobimetallic Complexes: Synthesis, Characterization, and Applications

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Considering the remarkable luminescence properties and biological activities of heterobimetallic compounds, they have gained ascending and comprehensive interest in the realm of catalysis research. Additionally, the preparation of heterobimetallic complexes could be challenging and require a rational synthetic approach concerning the compatibility and stability of the ligands and metals. A stepwise synthetic pathway could yet be another alternative method for the preparation of heterobimetallic complexes. In this approach, a metal complex is prepared, and a ditopic bridging ligand (a donor ligand possessing two binding sites for the coordination of metal atoms) is bound to the first metal, which is followed by the coordination of the second metal complex. Among these linker ligands, 1,1-bis(diphenylphosphino)methane (dppm) is a suitable candidate for the coordination of various metals to form homo- and heterobimetallic complexes. We have synthesized and characterized some new heterobimetallic complexes (Figure 1), which contain two different metals such as platinum group metals (PGMs), Au, and Ag. These heterobimetallic compounds are constructed by using a dppm ligand. The biological, optical, and catalytic properties of these complexes are investigated.

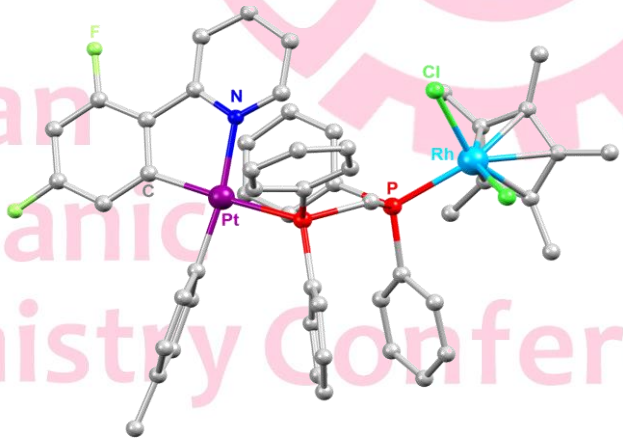


Figure 1. Crystal structure of a heterobimetallic complex.

Keywords: Heterobimetallic, Platinum group metals, Luminescence, Catalysis, Biological activity.

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