# Thioxobimanes: New Ligands for Coinage Metals

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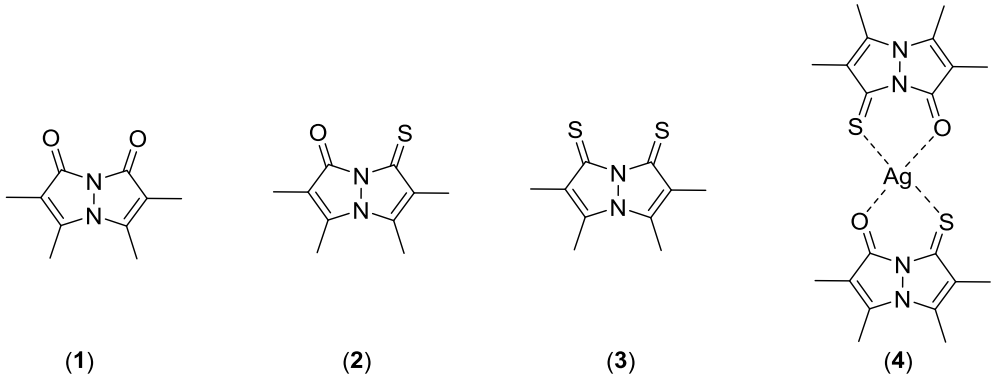
*syn*-(Me,Me)bimane's (**1**) heterobicyclic molecular skeleton is highly-conjugated and has been used in fluorescent dyes, mainly for cysteine biological labelling.[1] Although bimanes present hallmarks of a typical metal-binding ligand, i.e., O-and N-donors, and a sterically accessible π system, their role in coordination chemistry has not been studied so far. Recently, we reported the first complex of *syn*-(Me,Me)bimane as an O-donor ligand for Pd(II).[2]

We reasoned that in order to enhance the ability to form stable complexes of bimane with soft transition metals it would be necessary to replace one or both O atoms by softer S atoms. Thus, we modified the bimane ligand using a classical thionation agent (Lawesson's reagent). Both *syn*-monothioxobimane (**2**) and *syn*-dithioxobimane (**3**) were prepared and characterized. Chelation complexes of *syn*-(Me,Me)monothioxobimane with the three coinage metals, Cu(I), Ag(I)(**4**) and Au(I) were obtained. Preliminary results also indicate that *syn*-(Me,Me)dithioxobimane form chelation complexes with the abovementioned coinage metals.

X-ray data and QM modeling methods were used to comprehend the new thioxobimane structures. In this contribution, our latest results describing *syn*-thioxobimanes as chelating ligands for coinage metals as well as their structural and spectroscopic characterization will be presented.




(**1**) (**2**) (**3**) (**4**)

1. E. M. Kosower, B. Pazhenchevsky, E. Hershkowitz, *J. Am. Chem. Soc*. **1978**. *100*, 6516-6518.
2. P. J. Das, Y. Diskin-Posner, M. Firer, M. Montag, F. Grynszpan, *Dalton Trans*. **2016**, *45*, 17123-17131.