

A Xanthene-based Ligand with Two Adjacent Malonate Binding Sites

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Dedicated to Professor Gottfried Huttner on the occasion of his 70th birthday

The syntheses of two functionalized xanthenes are described which after deprotonation represent ligands for dinuclear metal complexes. For the previously prepared $[\text{R}^{\text{Xanthdim}}]\text{H}_2$ – which after deprotonation leads to a ligand with two adjacent β -diiminato binding sites – a significantly improved synthetic procedure is described involving the Pd catalyzed coupling of two diethyl malonate moieties to the xanthene backbone. Deprotonation of the resulting compound $[\text{Xanthmal}]\text{H}_2$ provides a ligand with two adjacent diethyl malonate functions. To demonstrate this, $[\text{Xanthmal}]\text{H}_2$ was reacted exemplarily with two equivalents of LDA to obtain the lithium salt $\{\text{Li}_2[\text{Xanthmal}]\}_2$ (**4**) which can be treated with ZnBr_2 to yield the zinc complex $[\text{Xanthmal}]_2\text{Zn}_2$ (**5**). Alternatively, **5** can be obtained directly from $[\text{Xanthmal}]\text{H}_2$, when ZnEt_2 is chosen as the metal precursor. The crystal structures of **4** and **5** are discussed. In summary, the results show that $[\text{Xanthmal}]^{2-}$ is a suitable ligand for the preparation of novel dinuclear metal complexes.

Key words: Zinc, Lithium, Ligand Synthesis, Xanthene, Malonate, Metalation