

HIGH-VALENT NON-HEME TOSYLIMIDO-IRON (IV) SPECIES IN TACN-BASED N₅-PENTADENTATE LIGANDS

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High valent iron complexes have been postulated as reaction intermediates in challenging oxidation reactions performed by bioinspired oxidation catalysts.^[1]

The capacity of non-heme oxo – iron (IV) complexes to transfer the oxo moiety to different substrates has been widely studied^[2] and it is well known that they are capable of performing such an interesting and challenging chemistry as the abstraction and hydroxylation of C-H bonds, even those as strong as in cyclohexane.^[3]

Related interesting compounds are tosylimido – iron (IV) species, which are analogue to oxo – iron (IV) complexes, thus should be capable of isolobal amination reactivity. Despite this fact, these compounds have been scarcely studied. Recent studies reported its potential showing the ability of heme and non - heme tosylimido – iron (IV) compounds to transfer the tosylimido moiety to nucleophilic substrates, such as phosphines or sulphides.^[4]

In this work we have prepared and completely characterized two novel non – heme tosylimido-iron (IV) compounds (figure 1) and we have investigated its reactivity towards thioanisole substrates to understand the transfer of the tosylimido moiety to the sulphur atom. A comparative analysis of kinetic parameters has been performed, as well as characterization studies of the reaction products by ¹H - NMR.

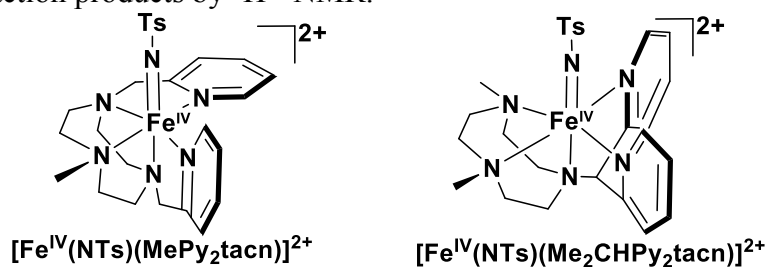


Figure 1. Tosylimido – iron (IV) compounds studied in this work.

References

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