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Development of Iridium(III) Hydroxamic Acid Complexes for Photodynamic Therapy

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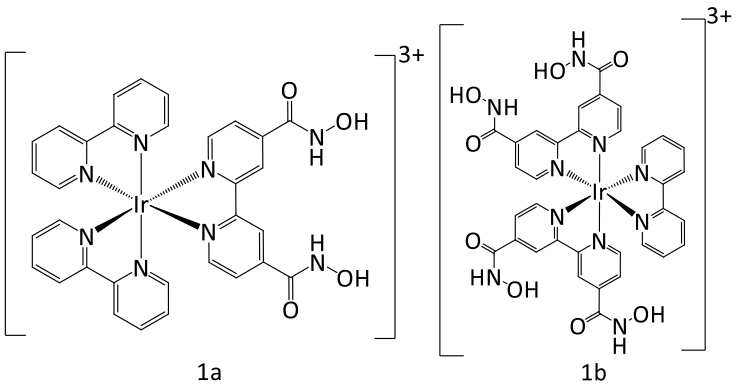
Photodynamic therapy (PDT) is a non-invasive treatment for different types of cancer. PDT uses a photosensitizer and light to generate reactive oxygen species (ROS) in the target tissue, leading to cell death. Given the potential application of this treatment for various types of cancers, the search for new photosensitizing agents with greater tumor selectivity has intensified.[1] Alternatively, nitroxyl (HNO) releasers, targeting the HIF-1α protein, have also been studied in cancer treatment, given HNO's efficacy as an anti-angiogenic agent, particularly in tumor cells.[2] This reactive nitrogen species can be generated through oxidation of the hydroxamic acid group.[3] In this context, designing new photosensitizer complexes containing hydroxamic acid ligands in their structure appears highly promising, as these molecules can combine two attractive properties in a single system: ROS production (by photosensitizer and light) and HNO release (through oxidation of the hydroxamic acid ligand). Thus, this work aimed to produce the polypyridyl complexes (1a) and (1b) as potential photosensitizers capable of producing ROS and HNO under light stimulation.



1a 1b

Structures of final complexes

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References

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[3] P. Kovacic et al., Journal of Receptors and Signal Transduction, **31**, (10-19).