**Synthesis and relaxometric characterization of MRI contrast agents based on pyclen structure and complexed with manganese.**

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Magnetic resonance imaging (MRI) has a leading place amongst all the imaging techniques thanks to its high spatial resolution and its non invasiveness. It suffers however from a low sensitivity and requires in some cases the use of contrast agents. Currently clinically used contrast agents are gadolinium complexes but their safety is more and more called into question. They are indeed involved in the NSF (nephrogenic systemic fibrosis) disease for patients with renal dysfunctionment and recent studies have shown a potential accumulation of gadolinium in the brain of patients after several injection, especially for the linear gadolinium complexes [1]. Alternatives are thus more and more investigated, and we propose here the synthesis of manganese contrast agents. These are based on the pyclen structure, with or not an additional arm on the pyridine moiety, allowing a further coupling of the Mn-complex on another entity. These complexes were fully characterized by proton relaxometry and 17O NMR to evaluate their efficacy as MRI contrast agents.



**Fig. 1.** 3 pyclen derivatives used in this work

[1] E. Kanal *Magn. Reson. Imaging* **34**(10), 1341–1345 (2016).