

Abstract:

For ^{19}F MRI the fluorinated contrast agents should be endowed by short relaxation times. Paramagnetic metal ions make relaxation times shorter and this effect depends on the distance between the metal ion and ^{19}F nuclei. The aim of this thesis is the synthesis of suitable ligand containing fluorine atoms, and a preparation of its Ni^{2+} and Cu^{2+} complexes. Macrocyclic 1,4,8,11-tetraazacyclotetradecane (cyclam) was selected as a starting material as it has optimal ring-size for complexation of the selected ions. The parent macrocycle was substituted by fluorine-containing coordinating pendant arms.

Key words:

Cyclam; Contrast agents; Phosphonic acids, ^{19}F MRI, Paramagnetic relaxation, *d*-metals