

Abstract

Magnetic resonance imaging is one of the imaging methods that are needed in medicine for diagnostic purposes. This method neither exposes the patient to X-rays, nor any other negative effects on the human organism are known by then. Another significant advantage of MRI is its ability to achieve high contrast even between structurally very similar tissues. The contrast agents commonly used with the magnetic resonance imaging help heighten this ability. Part of these contrast agents is a metal ion, the ion gadolinium (GdIII) is the most commonly used nowadays. But it must be complexed by a suitable ligand. This work deals with the synthesis of a number of potentially suitable model ligands. The saccharide component is even a part of these ligands. This component should enable to achieve a greater solubility of the complex or the possibility of linking other additional saccharide units, another ligand or a detecting group. Several theoretical paths leading to the final fabric were created. Not all of them led to the target, only one was successful. The produced macrocycle is the potentially applicable ligand for complexation with GdIII or other metal ion, it means a good part of the new potential contrast agent.