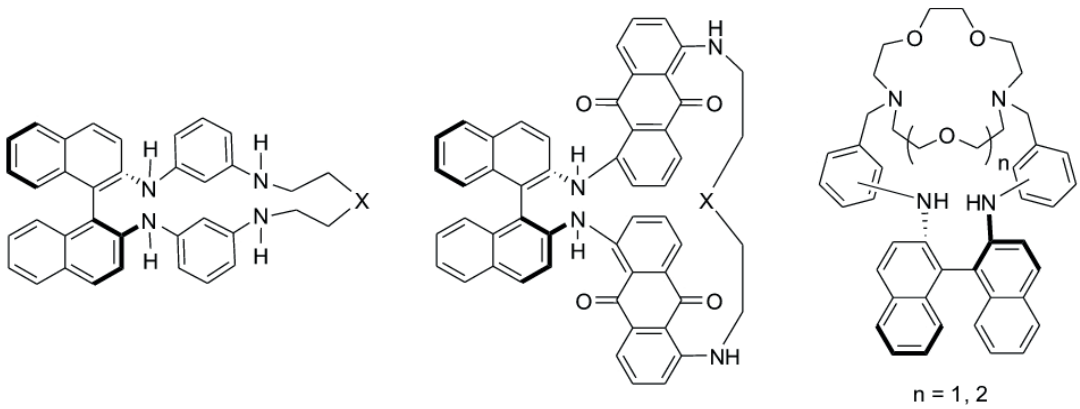
PALLADIUM-CATALYZED AMINATION IN THE SYNTHESIS OF CHIRAL MACROCYCLIC COMPOUNDS FOR FLUORESCENT ENANTIOSELECTIVE DETECTION

Averin A.D., Grigorova O.K., Malysheva A.S., Shaferov A.V., Beletskaya I.P.

Lomonosov Moscow State University, Department of Chemistry, 119991, Moscow, Leninskie Gory, 1-3
e-mail: alexaveron@yandex.ru

The development of the methodology of efficient detection of enantiomers of organic compounds envisages the use of fluorescent spectroscopy. In this connection the creation of detectors comprising chiral and fluorophore groups is actual. Such detector should be able to bind the analytes like amino acids and their derivatives, amino alcohols, diamine and diols. In this work we elaborated the synthetic approaches to various macrocyclic compounds containing polyoxadiamine fragments. The key step in the synthesis of such molecules is Pd(0)-catalyzed amination of aryl halides. As a result, we obtained planar-chiral macrocycles and macrobicycles on the basis of 1,5-diaminoanthraquinone, macrocyclic compounds comprising C2-chiral (S)-2,2'-dimino-1,1'-binaphthalene (BINAM) and various aromatic spacers. Also macrobicyclic BINAM derivatives on the basis of diazacrown ethers and tetraazamacrocycles (cyclen, cyclam) were synthesized. The investigations were carried out revealing the possibility to detect amino alcohols using fluorescent spectroscopy, the distinguishing between individual enantiomers was demonstrated.



The work was financially supported by RFBR, project No 18-03-00709.