NOVEL 5-(1H-BENZIMIDAZOL-2-YL)THIAZOLES. SYNTHESIS AND COMPLEXATION ABILITY EVALUATION

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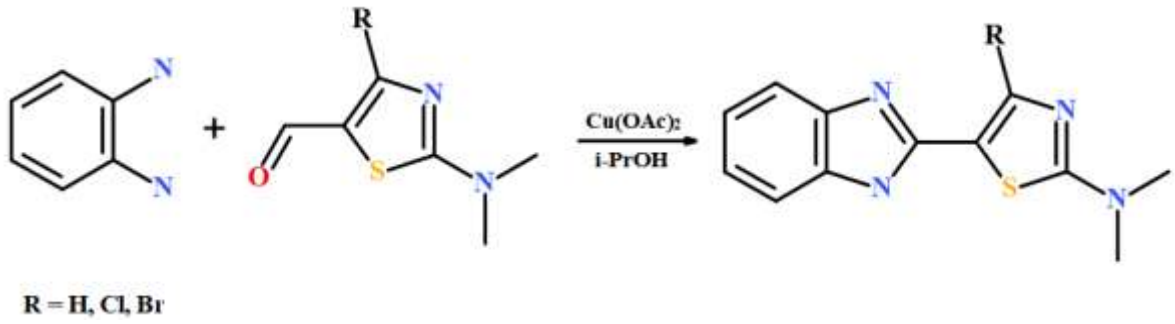
The interest of the scientific community in the study of benzimidazole derivatives depends on the anticancer properties of these compounds. Several antihelminthic, antacid and antibacterial drugs are known which have benzimidazole moiety as their essential constituent. Additionally, several bis- and tris-benzimidazole based systems are well-known for their interaction with DNA and interference with several DNA associated processes [1].

The implementation of the thiazole ring to the benzimidazole heteroaromatic system significantly expands the range of applications of benzimidazoles-containing compounds. Thus, 4-(1H-benzimidazol-2-yl)thiazole is well known as thiabendazole or TBZ and the trade names Mintezol, Tresaderm, and Arbotect, is a preservative E233 [2], an antifungal agent, and an antiparasitic agent. Another advantage of the benzimidazole-thiazole system is the ability of these compounds to coordinate with metal ions, which opens up additional opportunities for practical application in materials science.

Such aldehydes as substituted formylthiazoles are convenient reagents in condensation reactions with *o*-phenylenediamine. Previously our team has already described a suitable and affordable method of the benzimidazole cycle formation, starting from aldehyde and *o*-phenylenediamine, which provides satisfactory yields and practically excludes by-products formation [3].

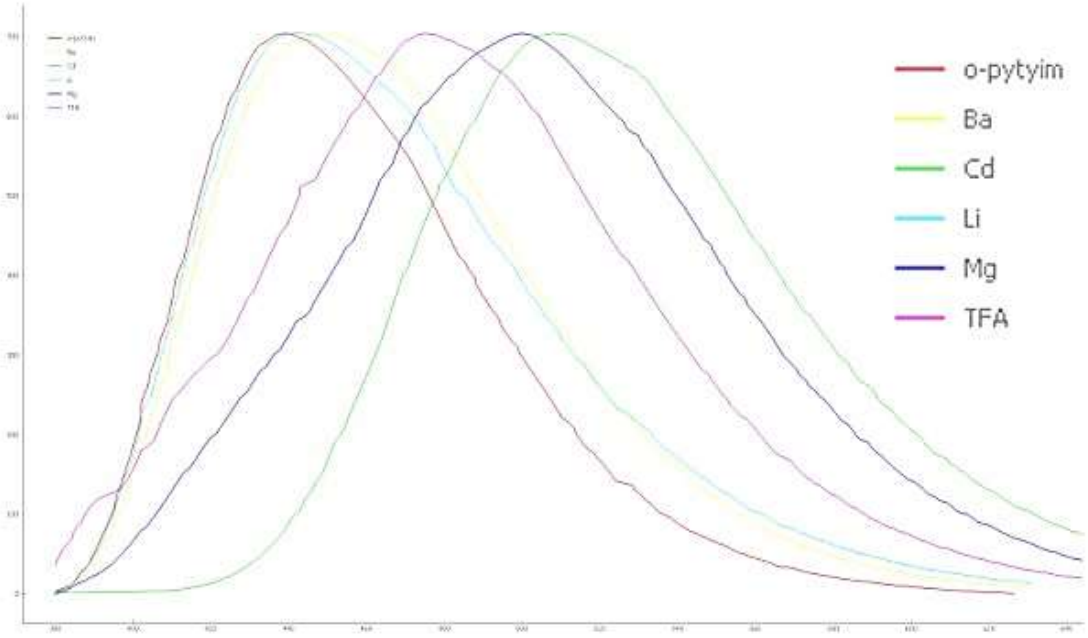


R = H, Cl, Br

Binding of the obtained compounds to metal ions was carried out using electronic spectroscopy - absorption and fluorescence spectra of the obtained

ligands and complexes. To define the substituent influence on complexation various 4-substituted 5-(1H-benzimidazol-2-yl)thiazoles were studied.

Earlier, we varied a series of dialkylamino substituents at position 2 of the thiazole and investigated the spectroluminescent properties of the complexes of these compounds. There was no significant impact of dialkylamino group found. However, we found excellent results in terms of selectivity for some metal ions in anhydrous acetonitrile, which will allow us to consider them as potential indicators for metals.



References:

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