

ABSTRACT

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Title of Thesis	Novel Synthetic Approaches Toward Non-Peripherally Substituted Phthalocyanines

Phthalocyanines are macrocyclic compounds structurally related to porphyrins, which are used as photosensitizers in photodynamic therapy in the treatment of tumor diseases. The principle of photodynamic therapy is based on activation of photosensitizer by specific wave length of light (in the area of visible spectrum), that is absorbed by photosensitizer. The excited photosensitizer releases the absorbed energy by generation of reactive molecule of singlet oxygen that causes damage to cancer cells.

In my diploma thesis, we synthesized precursors for phthalocyanines, derivatives of phthalonitrile. I was focused on the 3,6-disubstituted phthalonitriles because with the non-peripheral substitution of the final phthalocyanines leads to better, such as significant red shift of the main absorption band. We chose nucleophilic substitution and Buchwald-Hartwig coupling as the main synthetic approaches and we compared different reaction conditions to optimize them.