

ABSTRACT

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Title of the thesis: Synthesis of pyrazino[2,3-*b*]pyrazines - azaphthalocyanine precursors

The topic of my thesis was synthesis of azaphthalocyanines containing pyrazinopyrazine units. These molecules have been published only in few publications till now. Since these molecules are extended by one pyrazine nucleus on each unit, their extended conjugation leads to an increased absorption in the higher regions of the absorption spectrum.

In the first step, I focused on the synthesis of precursors for subsequent cyclotetramerization. Starting compound for the preparation of various precursors was 6,7-dichloropyrazino [2,3-*b*] pyrazine-2,3-dicarbonitrile. It underwent nucleophilic substitution leading to products substituted with various substituents attached *via* heteroatoms such as oxygen or nitrogen. Another option is the condensation of 5,6-diaminopyrazine-2,3-dicarbonitrile with appropriate diketone. This attempt did not lead to the successful preparation of the precursor.

The precursors were subsequently cyclotetramerized to corresponding macrocycles. We succeeded only with one precursor 6,7-bis(2,6-diisopropylphenoxy)pyrazin[2,3-*b*]pyrazine-2,3-dicarbonitrile. We have failed with the other precursors to prepare appropriate azaphthalocyanine.