ABSTRACT

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Title of thesis: **The synthesis of aza-analogues of phthalocyanines precursors**

Photodynamic therapy (PDT) is a new significant treatment modality for several diseases, particularly cancer. Light, oxygen and photosensitizing drug (PS) are combined to produce a selective therapeutic effect. An important breakthrough in PDT is searching for a new PS, modification of their photophysical and optical properties and modification of their synthesis and synthesis of their precursors.

I focused on the synthesis of precursors of type pyrazino[2,3-b]pyrazine by condensation of diaminopyrazine with diketones in my thesis. I prepared dibutylester of 6,7-dicyanopyrazino[2,3-b]pyrazin-2,3-dicarboxylic acid by condensation reaction of dibutylester dioxotartaric acid and 5,6-diaminopyrazin-2,3-dicarbonitril. Prepared precursor was subsequently used in cyclization reaction toenlarged azaphthalocyanine but the reaction failed. Further, I tried to prepare 6,7-dineopentylpyrazino[2,3-b]pyrazin-2,3-dicarbonitril by reactions of 1,2-dineopentylethan-1,2-dione and 5,6-diaminopyrazin-2,3-dicarbonitril and using Grignard reagents in the reaction with 6,7-dichloropyrazino[2,3-b]pyrazin-2,3-dicarbonitril either.