ABSTRACT

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Title of diploma thesis: Synthesis of novel 5,6-disubstituted derivatives of uracil as potential drugs

In this thesis, uracil was used as the core structure given its many biological activities that were reported such as antitumor, antiviral, antibiotic, hypoglycemic, diuretic and many others. The work was focused on the preparation of new 5,6- disubstituted uracil derivatives as potential biologically active agents.

2,4,6-Trichloropyrimidine was used for the preparation of 6-chlorouracil that was condensed with phenols or anilines to give the respective 6-phenoxyuracils and 6- phenylaminouracils. These intermediates were then modified in position 5 to give the final products. For this very challenging last step, various alkylating and acylating agents were used, *e.g.* Vilsmeier reagent, alkylchlorides, chloroacetyl chloride, ethyl chlorooxoacetate and ethyl bromoacetate. In the end, ethyl bromoacetate gave the most promising results affording four novel 5,6-disubstituted uracil derivatives.

During the experimental work it was found that pH of water used for the work up was critical aspect for NMR spectra identification of all signals that were expected. In addition, given the hydrophilic nature of the compounds, all of them had strong binding ability to water.