ABSTRACT

Charles University in Prague, Faculty of Pharmacy in Hradec Králové

Department of: **Inorganic and Organic Chemistry**

Candidate: **Mgr. Karolína Machová**

Consultant: **PharmDr. Marcel Špulák, PhD.**

Title of Thesis: **Synthetic studies on vasicinone leading to bronchodilatory active compounds**

The aim of this thesis was synthesis of quinazolines with potential bronchodilatory activity having attached in position 4 of the heterocycle alkoxy- or alkylamino- side-chain possessing basic centre. This work is a continuation of previous syntheses of quinazoline derivatives structurally derived from alkaloids vasicine and vasicinone, where so far the most active compound was 4-[3-(piperidin-1-yl)propylsulfanyl]quinazoline, with the side-chain possessing sulfur atom.

Originally, attempts to synthesize the target structures employing the cyclisation of *N*-(2-cyanophenyl)formamide were carried out, however, after overcoming the problems within the preparation of this intermediate, the cyclisation was unsuccessful, therefore starting quinazolin-4-ol was converted into its 4-chloro derivative and subsequent nucleophilic attack of alcoholate or amine allowed us to prepare five target compounds.

All synthesized quinazolines were submitted for an evaluation of their bronchodilatory activity. Unfortunately, none of the tested compounds displayed higher bronchodilatory effect than parent 4-[3-(piperidine-1-yl)propylsulfanyl]quinazoline.