

CHARLES UNIVERSITY IN PRAGUE

FACULTY OF PHARMACY IN HRADEC KRÁLOVÉ

Department of Inorganic and Organic Chemistry

Study program: Pharmacy

**Opponent's Report of Diploma Thesis**

Opponent: PharmDr. Markéta Komlóová, Ph.D.

Author of Thesis: Maria Kourtidou

Year of Defence: 2013

Title:

**Synthesis of 5-nitrosalicylanilide derivatives with potential antibacterial activity**

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Scope of Thesis: number of pages: 41, number of figures: 17, number of tables: 3, number of literature sources: 13

The thesis is experimental.

- a) Aim of the thesis: fulfilled
- b) Linguistic and graphical level: good
- c) Elaboration of theoretical part: good
- d) Description of methods: very good
- e) Presentation of results: good
- f) Discussion and conclusions: good
- g) Theoretical or practical contribution: good

The thesis includes abstract, theoretical part describing the epidemiology, diagnosis, symptoms and treatment of tuberculosis. The characteristics of salicylanilide compounds and the mechanism of their antimycobacterial action are also included in the introduction. Experimental part describes the synthesis of five salicylanilide derivatives performed by the student. The thesis ends with conclusion and a list of literature.

I have following comments and questions on the work:

The thesis is clearly written and organised. However the whole text deserved more precise elaboration. The thesis is written in simple English, but a scientific work requires scientific terms (e. g. remission and relapse instead of "the disease may go away and then go back").

Name of the chapter “The Bacteria of TB” is a bit misleading, because it contains epidemiology, pathogenesis and symptoms of the disease, but lacks the characterisation of the bacteria itself.

The name of bacteria is in a few cases not in italic (e. g. page 3 and 5).

There is no need to write “tuberculosis” with capital T (e. g. pages 4 and 5) and “rifampicin” with capital R (p. 11).

The chapter describing treatment options should include structures of compounds mentioned (isoniazid, rifampicin, pyrazinamide, ethambutol).

p. 11 – the symbol of degrees is lacking at the temperature units

The chapter about the treatment of TB contains a note about MDR-TB and XDR-TB. Do you know some antibiotics reserved as the second line treatment for these resistant forms?

The chapter 1.9 contains examples of salicylanilide derivatives numbered 1, 3 and 4. Why is this numbering used (2 is missing)?

Even though the used citations are mostly recent, number 13 is very low for this kind of scientific work. More additionally the references should be uniformly written in the list of references as well as in the text (e. g. page 10). Many of them are not complete (e.g. references number 9, 10, etc.).

The list of abbreviations is not complete (e. g. ICL) and should be in alphabetical order. It is not necessary to include chemical formulas in the list of abbreviation. The explanation of abbreviation after first placement in the text is in some cases duplicated (e. g. tuberculosis (TB) p. 2, 4, 12) and in some cases utterly missing (e. g. ICL p. 19).

Some figures used in the thesis are in very poor quality, the reference of the source is missing. They also lack numbering and captions. Both figures and tables need to be cited in the text as well.

Concerning the experimental part it is also a custom to describe the origin and purity of the compounds and solvents used. Concentration of NaHCO<sub>3</sub> solution used during the preparation should be given (p. 29, 31, 33...). It is not always specified which solvent was used for recrystallization (e. g. page 33 and 37).

There is a statement in the discussion about the purity of the prepared compounds: “According to NMR spectra interpretations all prepared compounds seem to be in a form of phenolate triethylammonium salts”. Why are there no traces of peaks of triethylammonium moiety in the described <sup>1</sup>H NMR spectra?

In spite of the above mentioned comments I recommend the thesis of Maria Kourtidou to the Committee for the defence.

Overall assessment: *good*

In HradecKrálové 28. 5. 2013

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Opponent’s signature