REVIEWER REPORT

on the Dissertation Thesis of

Mgr. Lucie Novosvětská

The dissertation thesis (DT) entitled ***"Sequential Injection Analysis Capability In Automation of Analytical Processes"*** originated at the Faculty of Pharmacy, Charles University, and submitted by the PhD candidate Mgr. Lucie Novosvětská, reports recent developments in the field of automation of biological, pharmaceutical, and environmental sample processing techniques exploiting most advanced flow methodologies. Four novel methods in SIA format employed therein include monitoring of drug permeation across a cell monolayer, on-line pre-concentration and determination of pesticides metsulfuron methyl and chlorsulfuron using carbon nanotubes as well as 2,6-dichlorophenoxyacetic acid using pre-concentration with a polymer inclusion membrane, and assay of lovastatin in dietary supplements using on-line pre-concentration on molecularly imprinted polymer. Fifth project dealing with HPLC determination of an antivirotic drug efavirenz for pharmacological placenta perfusion studies seems to be outside the scope of the DT. The flow analytical methods devised (as expedient alternatives to conventional chromatographic or immunoassay methods) are of potential practical importance. Hence the topic of the DT is up-to-date, outlining a number of original ideas, thus demonstrating undoubtedly the potential of the candidate for pursuing independent and meaningful scientific research.

The DT designed as comments to candidate´s publications involves 97 pages of text. As for the formal aspect of the DT, it is properly structured and presented in an understandable way with appropriate documentation by 40 diagrams and 5 tables. The Theoretical part is very well written, easy to follow, and the proposed objectives are clearly defined; 112 references quoted showcase the current state-of-the-art in the field of study, i.e., flow-based approaches in the automation of analytical procedures. Here the candidate demonstrated awareness and understanding of the intended area of study and has shown deep knowledge in this branch of analytical science. The essential part of the DT entitled Supplementary material comprises one unpublished manuscript and four full-text reprints of papers based on original research and published after rigorous peer-reviewing in the first-rate analytical journals. Moreover, the candidate has also presented her research in the form of 14 oral contributions or posters at several domestic or international conferences devoted to analytical chemistry. The chapter Conclusions summarizes the most important outcomes the DT while highlighting the candidate´s international experience.

Considering the significance of the results, high scientific quality, and novelty of the research encompassing international dimension, I do not hesitate to commend Mgr. Lucie Novosvětská to be awarded the PhD degree, subject to successful defence of her DT.

Comments and Queries

p. 21, 1st paragraph: In the renumeration starting with : "*Depending on particular …*" one important aspect is omitted.

p. 27, Fig. 2: The time-line shown ends up in 2010. Are there any new developments worth of being mentioned that eventually appeared in the recent 9 years?

p. 31, line 9 from the bottom: "*The column is **usually** placed between the selection valve and the detection* …". What are other possible configurations in SIC?

p. 46, line 14 from the top: there is a misprint

p. 65, Fig. 27: why the data from the experiment under protocol C do not continue for 4 hours as is the case with A and B?

p. 80, Fig. 38: Is it really a SIC system?

p.83, line 13 from the top: "…*which opened a new insight into this topic*". Could you please specify the essence of the new insight?

Supplement 5, p. 6, Fig. 2: Is it really a conventional SIC system? What is the sample throughput in the SIA method developed? I could not find such information in the manuscript.

Doc. RNDr. Miroslav Polášek, CSc. Hradec Králové, 3rd June 2019