

**CHARLES UNIVERSITY**  
**FACULTY OF PHARMACY IN HRADEC KRALOVE**  
Department of Organic and Bioorganic Chemistry

Study program: Pharmacy

**Opinion of the Thesis Tutor/Consultant about the Diploma Thesis**

Year of assignment: 2022

Year of the defense: 2024

Student: **Syedmohammad Khatibi**  
Thesis Tutor: PharmDr. Lukáš Opálka, Ph.D.  
Consultant: PharmDr. Monika Kopečná, Ph.D., RNDr. Martina Navrátilová, Ph.D.  
Opponent: Dr. Georgios Paraskevopoulos, Ph.D.  
Thesis title: **Optimization of the method for quantification of lipids in human corneocyte lipid envelope**

Scope of work, number of: 55 pages, 13 figures, 1 tables, 120 citations

**Evaluation of experimental work:**

- |   |           |
|---|-----------|
| a) Evaluation of methodological procedures:                   | Excellent |
| b) Skill in the laboratory or in obtaining experimental data: | Excellent |
| c) Independence:  | Excellent |
| d) Initiative:  | Excellent |
| e) Diligence and conscientiousness:                           | Excellent |

**Evaluating the processing of results and writing up the thesis:**

- |   |           |
|---|-----------|
| a) Processing of results (diligence and independence):        | Excellent |
| b) Interpretation and discussion of results:                  | Very good |
| c) Literary research:   | Excellent |
| d) Text processing (stylistic level):                         | Excellent |
| e) Formal level of the work (text structure, graphic design): | Excellent |

I recommend the thesis for recognition as a rigorous thesis

Verbal evaluation, distinctive features of the author, and the thesis:

Syedmohammad Khatibi started his work on his diploma thesis at the Department of Organic and Bioorganic Chemistry, in the Skin Barrier Research Group in 2022, which was his third year of studies. The aim of this project was to develop a reliable method for isolation of the covalently bound lipids from the tape-stripping samples of human stratum corneum.

Based on the literature research, several procedures for isolation of covalently bound lipids were identified. The project was mainly focused on the optimization of these procedures to be able to reliably remove free lipids from the samples and then to obtain the covalently bound lipids by saponification with high yields. During the project, Mohammad completed seven individual experiments, which always consisted of the free lipids extraction, purification of the pellet, saponification of the covalently bound lipids and lipid analysis using LC-MS/MS, where the conditions for individual steps were adjusted according to the previous experiment. Initially, the experiments were not successful due to very high temperatures used for the pellet washing and saponification. When the temperatures were decreased, a reasonable amount of covalently bound lipids were obtained and analyzed by LC-MS/MS. Based on this successful experiment, the purification and isolation conditions were optimized.

Mohammad started his work with enthusiasm, relatively early during his studies. He quickly learned to read and understand scientific literature and learned how to handle all the required techniques for processing the samples, lipid extractions and saponifications. The LC-MS/MS measurements were always conducted with the assistance of the supervisor or the consultant, but then the data evaluations were mostly done by Mohammad. Mohammad visited the lab regularly, especially at the end of his studies. He mostly worked independently, including the literature searches. Although there were some complications during the project, Mohammad was able to optimize most of the required procedures, which will be used routinely for the covalently bound lipids isolations in the future. Mohammad wrote his thesis quickly, in high quality and independently, only with some minor adjustments from my side.

**Evaluation of the thesis: Excellent**

**For the        Recommend  
defense:**

In Hradec Králové

29. srpna 2024

signature of the opponent