

CHARLES UNIVERSITY
FACULTY OF PHARMACY IN HRADEC KRALOVE

Department: Pharmaceutical Technology Master's degree program in Pharmacy

Opponent's review of Master's thesis

Student's name: Ramin Hafezi

Mentor of the thesis: PharmDr. Eva Šnejdrová, Ph.D.

Year of the thesis

Opponent of the thesis: Dr. Georgios Paraskevopoulos, Ph.D.

defense: 2021

Title of the thesis:

Formulation and characterization of oxims loaded PLGA nanoparticles

Formal comments: number of pages: 64, number of figures: 38, number of tables: 11,
number of references: 82.

Type of work: Experimental work

- a) The aim of the thesis is: Fulfilled
- b) Language and graphic level: Very good
- c) Processing of the theory: Very good
- d) Methods description: Very good
- e) Results description: Good
- f) Discussion and conclusions: Good

I recommend Diploma thesis for the recognition as Rigorous thesis .

Opponent's comments: The thesis is dealing with the formulation of polymeric nanoparticles which contain oximes by a double emulsion method. It is highly appreciated the fact that 82 references have been mentioned in the thesis and it is obvious that the student put an effort into it. On the other hand, the thesis is having considerable drawbacks which cannot be ignored. Initially, some abbreviations are missing from the list of abbreviations (e.g. BBB, PE, PEO, PPO). I would also expect the thesis' language to be of better quality, especially when passive voice is used. In addition, first-person sentences should be avoided in a scientific document. The "Theoretical section" has a disproportional length in comparison to the "Experimental part" and the "Results and Discussion" sections. The structure of Poloxamer 407 at page 26 is wrong - even if it was taken from an article. The experimental part is without details and it is questionable whether the experiment can be repeated by the given description. Vital information, e.g. the volumes of the mixed solutions - or their ratios - for the preparation of the final nanoparticles and the substance which was loaded in each formulation, are missing. The "Results and Discussion" part is difficult to follow since the text is not having the same order like the tables. Finally, some results are omitted (e.g. zeta potential is presented only for selected formulations).

Questions:

1. In page 19, acetone and acetonitrile are mentioned as examples of organic solvents which do not dissolve in water. In addition, in page 27 dichloromethane is mentioned as a low toxic solvent. Can you please comment these statements?
2. DMSO and DCM were used as organic solvents for preparing nanoparticles following the double emulsion method. What were the criteria for choosing these solvents?
3. During the double emulsion method there is initially formation of a W/O emulsion and later formation of a complex W/O/W emulsion. Was the formation of primary emulsions or double emulsions ever confirmed during the experiment?
4. Were any experiments performed to evaluate the encapsulation efficiency or the drug release profile of the nanoparticles?

Evaluation of Master's thesis: Very good

Recommendations for the thesis defense: Recommended

In Hradec Kralove 27.05.2021

.....
Opponent's signature