Specialized Laboratory for Drug production (N111049)

Instructions

Pharmaceutical formulation:
semisolid dosage forms

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Study program: Drug synthesis and production

Study field: Drug production

Location: A73
**Introduction:**
Pharmaceutical formulation is a part of the drug development procedure. During this process active substances are formulated into a final dosage form using appropriate excipients and technological procedures. The outcome is then the concrete composition of the drug preparation, manufacturing specification, and the final design of the medicinal product.

**Aim of the work:**
The aim of this laboratory training is to introduce the student into the basic principles of formulation of semisolid pharmaceutical dosage forms for topical application (ointments, creams, gels, and pastes).

**Schedule:**
The training takes place within of two weeks (every week one day – Thursday), in total two days. In the first day, the students obtain their taskwork specification: composition of the particular medicinal products. The students will focus on their theoretical preformulation preparation using advised literature sources. The outcome of this theoretical introduction will be a proposal of appropriate preparation procedures of the tasked preparations and elaboration of the theoretical part of the final protocol (see the protocol structure below). The students will obtain their taskwork specification at 9:00 AM in room A73.

On the next Thursday, the students will prepare the tasked preparations and verify their proposed preparation procedure in practice. The outcome will be elaboration of the second part of the final protocol. This practical part will take place from 8:00 AM in room A73.

**Individual student work: elaboration of the theoretical part of the protocol:**
1) Basic introduction into the tasked drug application forms from the physico-chemical point of view
2) Physico-chemical characterisation of the particular active substances and excipients, searching for possible incompatibilities
3) Definition of function of particular excipients in the tasked preparations
4) Proposal of appropriate preparation procedures of the tasked preparations and consultation of these procedures with the tutor

→ see the protocol structure below

**Recommended literature sources:**
The Czech and European pharmacopoeia
Internet sources
Florence, Siepmann: Modern Pharmaceutics, fifth ed., Informa Healthcare 2009 and others
**Protocol structure**

1. **Theoretical introduction**
   - characterization of the tasked drug application forms from the physico-chemical point of view
   - stability of the dosage forms
   - general preparation procedures of the dosage forms

2. **Aim of the work**

3. **Methods and Results**
   - for each drug preparations following points should be described:
     
     **TITLE**
     Definition of the drug preparation
     Composition
     Characterization and function of the particular components
     Theoretically proposed preparation procedure
     Experimentally confirmed preparation procedure
     - including changes compared to the theoretically proposed preparation procedure
     Conclusion
     - evaluation of the differences between theoretically and experimentally proposed preparation procedure
     - explanation of the physico-chemical consequences

4. **List of symbols**

5. **References**