

# **DRUG DOSAGE FORMS**

## **Notes for Students**

**This study material is exclusively for students of general medicine and stomatology in Pharmacology I course. It contains only basic notes of discussed topics, which should be completed with more details and actual information during practical courses to make a complete material for test or exam studies.**

**Which means that without your own notes from the lesson this presentation IS NOT SUFFICIENT for proper preparation for neither tests in practicals nor the final exam.**

- **final drug form ready for administration to patient**
- **modifies the general effect of the drug**

**Classification: *based on consistence***

- **solid**
- **semi-solid**
- **liquid**
- **gaseous**

• ***based on routes of administration (internal/external-others)***

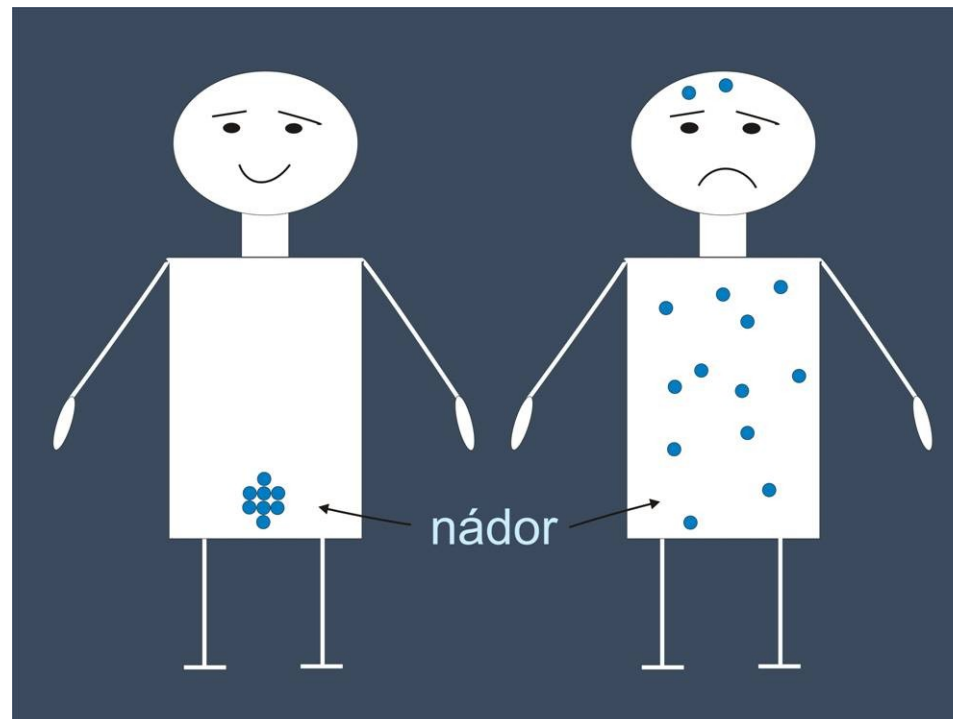
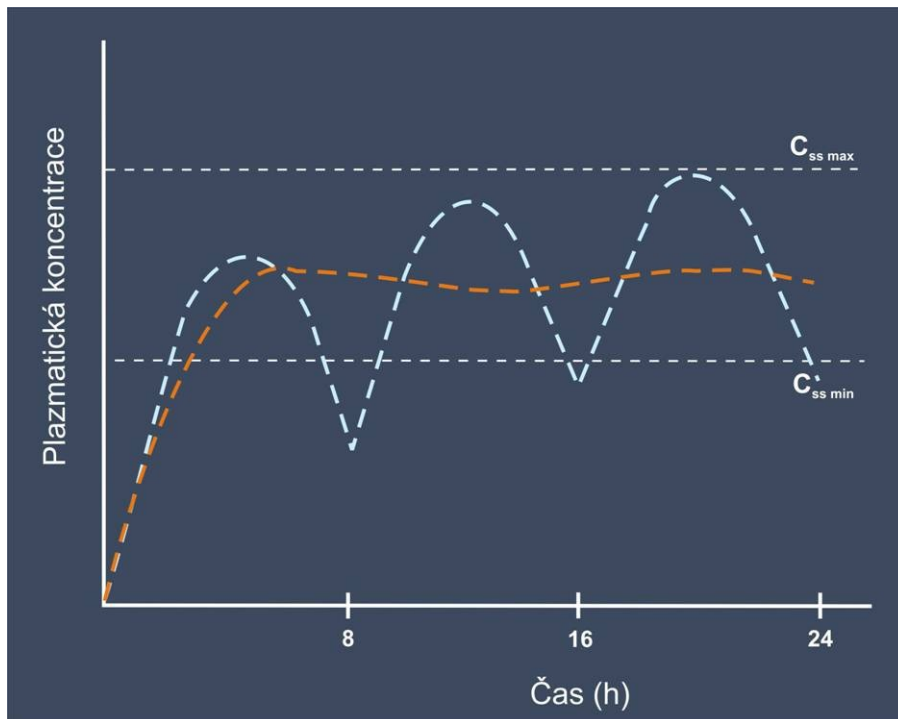
• ***based on shape specificity (specific/nonspecific)***

1. suitable form of active substance (AS) for the administration
2. administration of a specified dose of AS
3. protection of AS against environmental influences (light, humidity)
4. protection of AS in human body ( $\downarrow$  pH in stomach)
5. adjustment of organoleptic properties (smell, taste)
6. influence of the PK properties:
  - release adjustment
  - targeted distribution of AS

# DDF Classification

## For systemic effect

1. generation: DDF without release control (conventional)
2. generation : **controlled release** DDF (CR)
3. generation : **targeted distribution** DDF (drug delivery system)



# **LIQUID DOSAGE FORMS**

- **liquida cutanea (pulveres adspersorii liquidi)**
- **liquida peroralia**
- **oromucosalia**
- **otoguttae**
- **rhinoguttae**
- **oculoguttae**
- **injectiones**
- **infusiones**
- **(aquae aromaticae a tincturae)**

# Liquida cutanea

- for topical application
- local or systemic action
- solutions, emulsions, suspensions
- antimicrobial agents, stabilizers, emulsifier

## Solvens (vehiculum):

- hydrophilic: Aqua purificata, Aqua conservans, Glycerolum 85%, Ethanolum 60%, 85%, 96%
- lipophilic: Helianthi oleum raffinatum, Olivae oleum raffinatum, Arachidis oleum raffinatum

# Liquida cutanea

## Solutions for compresses and spreading

- rem. cardinale in appropriate conc.
- quantity depends on: size of treated area, frequency of application, period of treatment

## Pulveres adpersorii liquidi—liquid powders

- suspensions
- calming, cooling, antipruritic action
- composition:
  - solid base(pulveres): 30-40%, usually talc and ZnO
  - liquid base: Glycerol 85%, Ethanolum 60%
  - viscosity enhancers: Bentoniti magma, Aerosil



# Liquida peroralia

- for internal use
- local or systemic effect
- true and colloid solutions
- antimicrobial agents, stabilizers, emulsifiers, taste and smell modifiers

## Classification:

1. peroral drops
  2. peroral solutions, emulsions, suspensions
  3. syrups
- „tinctures and aromatic waters“

# Liquida peroralia

- prescribed as undivided preparations
- divided into doses by patient before use
- easy administration (pediatrics)
- measure cups, spoons, drops

1 aqueous drop    0.05 g    1 dessert spoon 10.0 g  
1 tea spoon        5.0 g    1 table spoon    15.0 g

## Peroral drops

- exact volume of drug
- for highly efficient drugs
- usually DTS in 1 g of aqueous or 0,3g        spirituous  
solution(20 drops)
- total amount: 10-25g

# Syrups

- concentrated aqueous solutions of sugars or polyols
- usually as adjustment of taste properties
- **Officinal: Althaeae sirupus, Plantaginis sirupus, Sirupus simplex**

## **Plantaginis sirupus**

<b>Plantaginis folium</b>	<b>5,0</b>	
<b>Aqua purificata</b>		<b>45,0</b>
<b>Saccharosum</b>	<b>64,0</b>	
<b>Methylparabenum</b>		<b>0,15</b>
<b>Ethanolum 96%</b>		<b>1,0</b>

# Aquae aromaticae

- saturated aqueous solutions of essential oils
- typical smell
- spasmolytic, carminative effect
- carminative = against meteorism and flatulence
- **Officinal: Aqua carminativa**

**Aqua carminativa rubra**

# Tincturae

- **spirituous extracts**
- **administered in drops (10-20)**
- **amounts 10-20 g**
- **Officinal: Tinctura amara, Valerianae tct.**
  - **Capsici tinctura normata**
  - **Salviae tinktura**
  - **Myrrhae tct., Gallarum tct., Ratanhiae tct.**

# Oromucosalia

- **for administration to the oral cavity and/or oropharynx**
- **local or systemic action**
  - **Gargarismata**
  - **Aquae gingivales**
  - **Solutiones gingivales**
  - **Guttae oromucosales, praeparata pro aerodispersione oromucosali et preparata pro aerodispersione sublinguali**

# Otoguttae

- solutions, emulsions, suspensions
- suitable for administration into ear
- up to 20 g
- adjusted into bottles + dropper!
- antimicrobials, wax softeners

• **Officinal: Aluminii acetotartratis**

**otoguttae**

# Rhinoguttae

- **local or systemic effect**
- **isotonic**
- **usually 10-20 g**
- **ATBs, antihistamines, antiseptics, decongestants**
- **hormones, calcitonin, insulin?**



# Occuloguttae

- local effect with a risk of systemic reaction
- isotonic, sterile (isoacid)
- up to 10 g
- S.s.v.
- mydriatics for diagnosis and treatment
- antiglaucomatics
- antiseptics, antibiotics
- antihistamines, decongestants

# Iniectiones

- **sterility**
- **pyrogen-free (test for bacterial endotoxins – pyrogens)**
- **solutions for infusion or injection (limpidity) → absence of foreign particles → test for sub-visible particles**
- **parenteral preparations may require the use of excipients e.g.**
  - **to make the preparation isotonic with blood**
  - **to adjust the pH**
  - **to increase solubility**
  - **to provide adequate antimicrobial properties**

# Infusiones

- similar requirements as in injections
- without antimicrobial agents
- volumes 100-400 ml (1000 ml)

## IPP:

- Ad lagoenam pro infusione.
- Suo nomin. Cum formula.
- some can be prescribed like officinal drugs
- **Officinal: Glucosi infusio (5%, 10%, 20%, 40%), Natrii chloridi infusio isotonica**