

LIQUID 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.

Drug dosage form

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

Classification: based on consistence

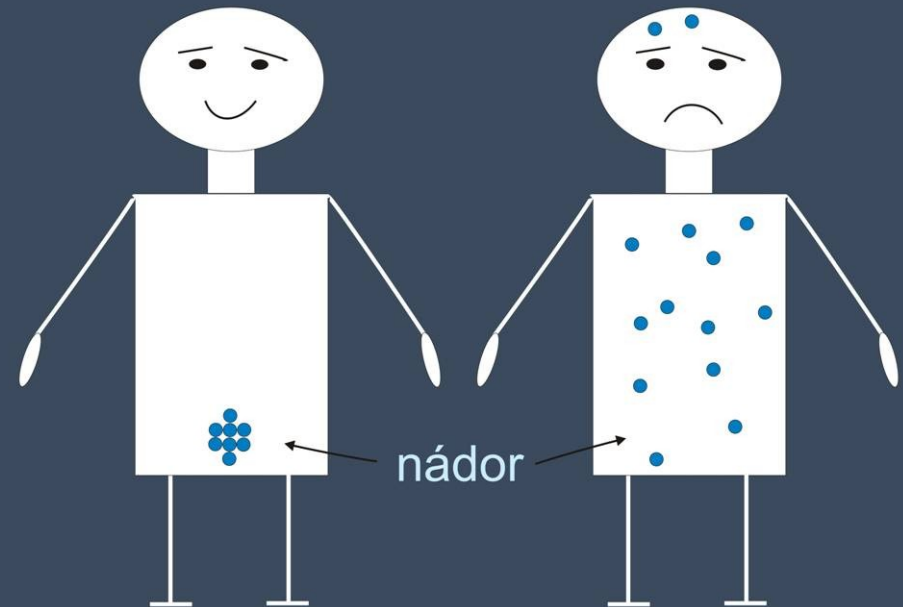
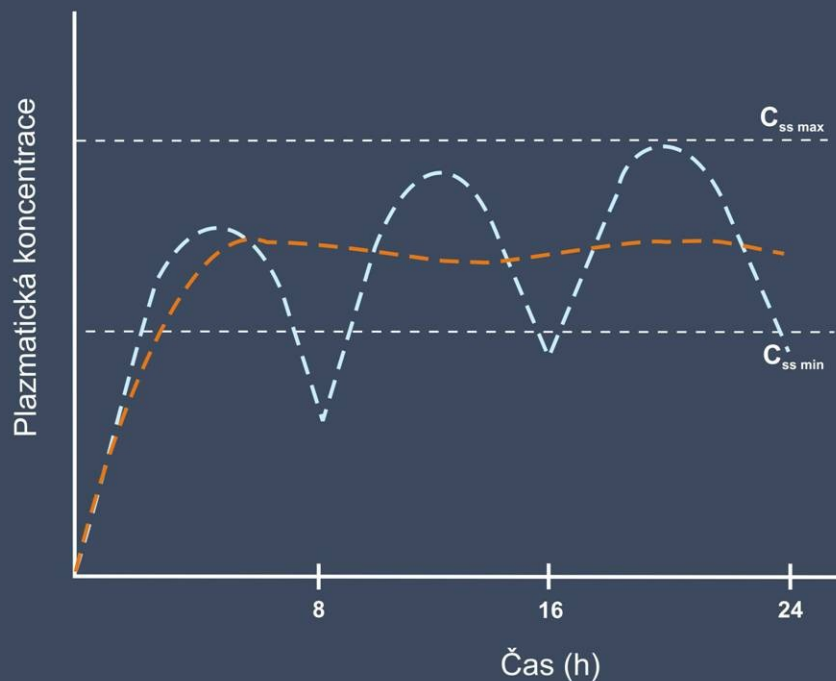
- solid
 - semi-solid
 - liquid
 - gaseous
-
- *based on routes of administration (internal/external-others)*
 - *based on shape specificity (specific/nonspecific)*

Drug dosage form

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)



DRUG DOSAGE FORMS :
2 . LIQUID DOSAGE FORMS

Liquid dosage forms

- liquida cutanea (pulveres adpersorii 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):

- hydrophillic: Aqua purificata, Aqua conservans, Glycerolum 85%, Ethanololum 60%, 85%, 96%
- lipophillic: 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
- Official: *Althaeae sirupus*, *Plantaginis sirupus*, *Sirupus simplex*

Plantaginis sirupus

Plantaginis folium 5,0

Aqua purificata 45,0

Saccharosum 64,0

Methylparabenum 0,15

Ethanolum 96% 1,0

Aquae aromaticae

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

Aquae aromaticae

- saturated aqueous solutions of essential oils
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Tincturae

- spirituous extracts
- administered in drops (10-20)
- amounts 10-20 g
- Official: 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

Otouguttæ

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

- Official: *Alumini acetotartratis otouguttæ*

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