

SOLID AND SEMISOLID 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.

- **pulveres perorales** (powders)
- **pulveres adspersorii** (dust powders)
- **species** (herbal teas)
- **tabulettae** (tablets: uncoated, coated, film coated, gastro-resistant, sublingual.....)
- **capsulae** (capsules: hard, soft, prolonged release.....)
- **implantata** (implants)
- **suppositoria (suppositories)**
- **globuli vaginales** (pessaries- vaginal balls)
- **gummi manducabilia medicinalia**
- **styli**
- **tampona medicata**

Pulveres

- formed by powdered solid particles
- one or more of active substances + excipients
- internal/external use; undivided/divided, shape nonspecific/specific, single/multiple dose

Pulveres adpersorii:

- shape nonspecific, for external use only
- application in dry form directly onto skin
- local effect, domain of dermatologists and pediatricians
- antiseptic, antiitching, protective effects

Pulveres adspersorii

IPP: Effective: Acidum boricum; Mentholum

racemicum; Bismuthi subgallas;

Ichthammolum, Tanninum

Adjuvants: Zinci oxidum; Talcum; Tritici

amylum; Oryzae amylum; Calcii carbonas; Magnesii oxidum leve; Bentonitum

Pulveres

Perorales:

Undivided (non divisi):

- shape nonspecific
- administered in dry form – measuring cap, spoons
- for preparation of solutions (antacids, gargles)
- only for drugs with low efficacy (innacurate dosing)

Pulveres perorales

Divided (divisi)

- single dose
- for the prescription of highly effective drugs (Separanda, Venena)
- single dose of 0,1-0,5g weight
- vehicle: Lactosum monohydricum
- single dose usually in hard capsules

Species

- **herbal mixtures, herbal teas**
- **the easiest form of herbal preparation**
- **mixtures or single species herbal drugs**
- **usually RMP**
- **tea is prepared usually by pouring over one table spoon one cup of boiling water**

Tabulettae

- **solid pressed shape specific preparations**
- **usually flat rounded or disc like shapes**
- **pressed from granulates**
- **usually RMP**
- **different types of tablets, can exert different influence especially on drug release**

Non-coated tablets

- **classical pressed tablets**
- **their disintegration is influenced only by the properties of granulates (grained powders)**

Tabulettae

Coated tablets = obducts (dragee)

- based on non-coated tablets, which are usually coated with sugar layer
- tablets are sprayed with sugar solutions
- function of layer – protective, marketing
- polymer film can be also used

Effervescent tablets

- contain weak acid salts: bicarbonates, citric or tartaric acid, sparkle in contact with water and CO_2 is released
- sparkling solutions are prepared

Tabulettae

Tablets dispersed in mouth

- quick disintegration
- fast onset of effect

Gastro-resistant tablets

- acid resistant coating
- prevents drug against breakdown in stomach

Controlled release tablets

- prolonged or modified release
- matrix or membrane systems
- 2 phase release

Tablettae

Sublingual or buccal tablets

- systemic/local effect
- slow/fast release of drug

Vaginal tablets

- local effect
- infectious diseases, birth induction

Capsulae

- single dose preparations, different size, shape, color
- contain drugs in edible coating

Hard capsules

- usually dry content
- coating is made of two parts

Soft capsules

- filled with lipophilic solutions
- single part coating

Capsulae

Gastro resistant capsules

- coating soluble in specific pH

Controlled release capsules

- membrane systems

Implantata

- **for parenteral use**
- **must be aseptic**
- **slow release of drug**
- **contraceptives**

Suppositoria

- **cylindric or conic shape, destined for the insertion into rectum**
- **one or more drugs dispersed or dissolved in sup. basis**
- **can contain excipients (solvents, antimicrobial agents)**
- **local/systemic effect**
- **solid at room temperature**
- **melting at body temperature**

RMP:

- **produced by pressing**

Suppositoria

IPP:

- prepared by pouring
- hydrophobic bases: Cacao oleum, Adeps neutralis
- hydrophilic bases: gel forming mixtures: Gelatinae glycerogelatum macrogols

Globuli vaginales

- **similar to suppositories**
- **pressed or poured**
- **same mass as suppositories**
- **with local effect**

Semisolid drug dosage forms

- semisolid preparations are supposed to contain either drugs with local or systemic effect
- can be used for skin protection or softening
- are homogenous
- dermatology – represented by single or composite base with dissolved or dispersed drug/drugs
- base composition can influence the final effect

Classification:

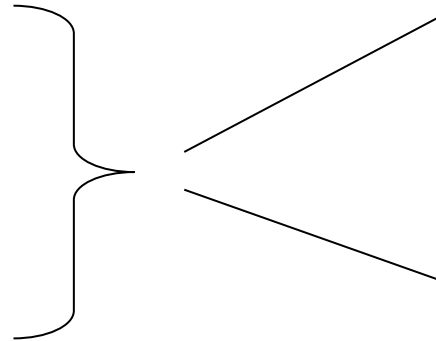
ointments

creams

gels

pastes

medicated patches



hydrophilic

hydrophobic

Ointments (Unguenta)

Excipients for hydrophobic bases

- vaselinum album
- vaselinum flavum
- adeps suilus
- cera alba
- paraffinum liquidum/solidum

Ocularia semisolidia

- **sterile (!)** eye oint., creams or gels

IPP: ointment base

- **Unguentum ophthalmicum simplex**
- M. f. oculentum.
- M. f. ung. ophthal.
- max 10g
- in sterile containers with applicator
- expiration 4 weeks

Medicated patches (Emplastra medicata)

- contain one or more of active substances
- for skin applications
- patches guarantee the contact of active substance with skin, or can exert protective or keratolytic effect

TTS – transdermal therapeutic systems – Emplastra transcutanea

Advantages:

easy administration
controlled release of drug
(constant levels)
skip the first pass effect
easy drug discontinuation

price

Disadvantages:

skin sensitization
excipients allergy
influence on skin microflora
slow onset of effect ↑ compliance

Medicated patches (Emplastra medicata)

TTS

- exclusively RMPs
- drug gets into the skin (penetration)
- drug passes through the skin (permeation)
- drug gets to blood or lymphatic vessels (resorption)

- Angina pectoris (glyceroltrinitrate)
- Kinetosis (scopolamine)
- HRT (oestrogens) + contraceptives
- Pain and inflammation (fentanyl, flurbiprofen, diclophenac)
- Substance abuse discontinuation (nicotine)

TTS with membrane controlled release

