Liquid medicinal forms

Liquid forms of drugs

- Solutions
- Tinctures
- Infusion
- Decoction
- Mixture

Solution – is a liquid drug form produced by dissolves solid or liquid medicinal substance in solvent.

Most frequently used solvents

English writing	Latin writing
Water purified	Aqua purificate
Ethyl alcohol 70%, 90%, 95%	Spiritus aethylicus
Glycerol	Glycerinum
Liquid oil: peach oil, olive oil	Oleum Persicorum Oleum Olivarum

Administration of solution

1) **for injections/ infusion**

2) **for external use** (ear drops, eye drops, solution for irrigation, mouthwash)

3) **for internal use** (solutions, tincture, infusions, decoctions, mixtures)

Solution for internal use (solution for injection and infusion).

As a rule, this is dosed form →

1) we mark concentration (how many grams of drugs in 1 ml of solution) mg/ml
2) volume of ampules
3) number of doses (ampules)

Rp.: Solutionis Epinephrini 1mg/ml -1 ml.
D.t.d. № 5 in ampullis.
S. Inject 1 ml i/v in emergency situation

Solution for external use
(eye drops, ear drops, solution for irrigation)

We usually mark concentrations in percents.

As a rule, this is not dosed form, therefore we mark only ***volume*** and ***percent of solution*** without number of doses.

- Rp.: Solutionis Pilocarpini 1% - 5 ml.
  D.S. Instill one drop in left eye twice a day.

- Rp.: Solutionis Oxymethasolini 0,05% - 15 ml.
  D.S. Take one drop two times a day intranasally.

- Rp.: Solutionis Chlorhexidini bigluconatis 0,05 % - 100 ml.
  D.S. Gargle three times a day.

The concentration of solution can be marked in the following way:

1. Concentration of the solution in the percentage

Rp.: Solutionis Furacillini 0,02% - 500 ml.

D.S. For bathing the wound

2. Concentration of solution as a ratio:

Rp.: Solutionis Furacillini 1:5000 - 500 ml.

D.S. For bathing the wound

Solution for internal (oral) administration

(solution, infusions and decoctions, tinctures, mixtures)

They are usually measured by spoon (tablespoon, teaspoon) and measured glasses.

Type of spoon	Volume (ml)
Tablespoon	**15 ml**
Dessert spoon	**10 ml**
Tea spoon	**5 ml**

When solution is prepare in pharmacy for individual administration

Calculate the concentration of the solution for internal administration

A example and calculation of the prescription. Write out the prescription of the solution of Potassium Iodide for administrating by one tablespoon three times a day during 4 days. One tablespoon should contain 0,45 grams of Potassium Iodide for one intake.

Calculation of the percent of solution:

15 ml (volume of tablespoon) contain 0,45 grams (Potassium Iodide for one intake) →

100 ml contain 3,0 grams → i.e. 3% -solution.

Calculation of the solution volume:

15 ml (volume of tablespoon) × 3 (three times a day)×4 (four days)= 180 ml

Rp.: Solutionis Potassium Iodide 3% - 180 ml.

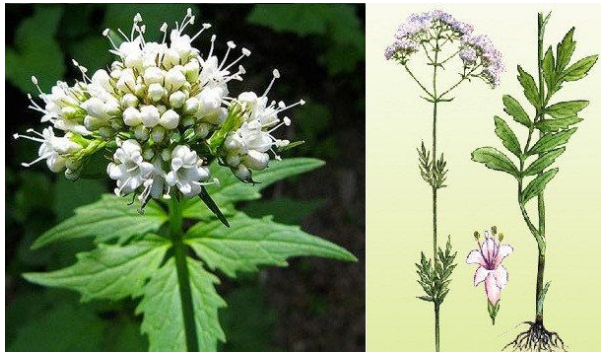
D.S. Take one tablespoon tree times a day.

Infusions and decoctions (infusa et decocta) - *water* extract of medicinal plant raw material.

- ✔ Infusions are frequently produced from the leaves, flowers and grass.
- ✔ Decoctions are frequently produced from the root, bark and sometimes from the leaves (for example dense leathery leaves of Bearberry *Arctostaphylos Uva-ursi*).

Infusions and decoctions (infusa et decocta) It is produced in pharmacy or at home.

1. Infusions and decoctions are decomposed and become are unusable very quickly. For this reason they are prepared for 3- 4 days of use.
2. Concentration of the infusions and decoctions often marked as mass-volume ratio. Infusion and decoctions are prepared in ratio 1:10.
3. Infusions and decoctions are usually prescribed for internal use and dosed in spoons.



- Infusions from the grass of Adonis (*Adonidis vernalis*), Lily of the valley (*Convallaria majalis*), from the rhizome of common valerians roots (*Valeriana officinalis*) are prepared in ratio 1:30.

Write out the infusion of grass of Adonis (herba Adonidis vernalis) in ratio 1:30. Common volume 180 ml. Take one tablespoon three time a day.

First variant of prescription writing:

Rp.: Infusionis herbae Adonidis **1:30 – 180 ml.**

D.S. Take one tablespoon three time a day.

Second variant of prescription writing:

Calculating of the mass of the grass:

In 30 ml of infusion 1,0 gram of grass is contained.

In 180 ml of infusion – 6,0 gram of grass is contained.

Rp.: Infusionis herbae Adonidis **6,0 – 180 ml.**

D.S. Take one tablespoon three time a day.

Tincture – is a **alcohol** extract from the medicinal plant raw material.

Tincture is produced **only** in pharmaceutical **factories**

Ethyl alcohol 70% (*Spiritus aethylicus*) is a usually used solvent for prepare of a tinctures.

1. Tincture is written out **without** specifying **concentration of alcohol**.
2. Tincture is written out **without** specifying **part of the plants**.
3. Tincture is usually dosed by **drops.**

Write out the tincture of rhizome with root of Valerian. Total volume 30 ml.

Rp.: Tincturae Valerianae 30 ml.

D.S. Take 30 drops orally three times a day.

Mixture – is a liquid medicinal form, obtained by:

1. Dissolution or mixing several solid medicines in different liquids
2. Mixing several liquid medicines (solutions, infusions, decoctions, tinctures).
3. Mixture contain three or more components.