


# Suppositories



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- 
- Planch – дошка
  - Wrap up – обгортати
  - Roll – розклатати

Suppositories - dosed medical forms, solid at room temperature and melted or dissolve at the temperature of body.





# Depending on a place of introduction suppositories differentiated:

- rectal (suppositoria rectalia), intended for introduction to the rectum;
- vaginal (suppositoria vaginalia), intended for introduction in vagina;
- sticks (bacilli), intended for introduction to motions of fistula, urethra, channel of neck of uterus, acoustic duct and others like that



For the method of preparation suppositories  
divided into:

- Rolling (hand-pumping)
- pouring.

For the localization procedure:

- local action;
- resorbtion action.

# By type of suppositories basis:

- suppositories in hydrophobic bases
- suppositories in hydrophilic bases



## Requirements to suppositories:

- Time of melting (for suppositories on hydrophobic bases) – 15 minutes
- Time of dissolution (for suppositories on hydrophilic bases) – 60 minutes
- Length of rectal suppositories must be from 2,5 to 4 centimeters
- A maximal diameter of rectal suppositories is 1,5 centimeters
- **Mass of rectal suppositories** is from 1,0 to a 4,0 g (**middle 3,0**)
- **Mass of vaginal suppositories** must be from 1.5 to a 6,0 gram (**middle 4,0**)
- Sticks must have a form of cylinder with a sharp end and diameter not more than 1 centimeters.
- Length of sticks must not exceed 10 centimeters, but mass must be from 0,5 to a 1,0 gram.
- Rejections in-bulk suppositories must not exceed  $\pm 5 \%$ . Medicinal matters which are contained in them are guilty to be exactly dosed. Suppositories must have correct and accordingly identical form, homogeneous mass, sufficient hardness (mechanical durability) and fuse at the temperature of body.
- Suppositorial mass must be homogeneous, without inclusions, marbling, and sequins.

# Disadvantages of suppositories:

- not hygienic of administration
- duration of preparing.





## *Requirements to the suppositories bases :*

- sufficient hardness at a room temperature and ability to fuse (whether to dissolve) at a temperature not higher than 37 °C, that sharply to pass ability from the solid state to the liquid, passing the stage of softening influence - ointment stage; sufficient viscosity, absence of smell, providing of maximal contact between medicinal matters and mucus shell;
- chemical and pharmacological indifference, absence of irritating actions, firmness to the action of external factors (light, heat, moisture, oxygen of air, micro organisms);
- ability easily to acquire the proper form, mixed with the largest possible number of drugs, do not interact with them and be stable during storage;
- easily to free ability medicinal matters, instrumental in the display of them pharmacological action, which depends both on properties of bases and from the method of introduction of medicinal matters in basis;
- presence of the proper reological indexes and optimum structurally mechanical properties.




# **PRESCRIPTION OF SUPPOSITORIES**

Suppositories prescribe in recipes by two methods:

- distributive
- separate.

# GENERAL RULES OF PREPARATION SUPPOSITORIES

- The main technological task in the preparation of suppositories is that most drugs dispersed evenly not only in suppository mass, but in every suppository, ball or stick, giving them the necessary geometry.
- If mass of suppository in a recipe is not marked, prepare 3,0 grams suppository. In child's practice mass of suppository is necessarily specified in a recipe is must be from 0,5 to 1,5 gram.
- If mass of vaginal suppositories is not marked, 4,0 grams suppository. The size of sticks is guilty to be marked in a recipe.
- For preparation of suppositories in the conditions of pharmacy utilize the method of deflation, and at presence of facilities of small mechanization are methods of outpouring and pressing.

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- Medical substances, which are not dissolve in basis, add according to principle of suspension: if amount of solid substances more then 5 % grind in mortar with  $\frac{1}{2}$  from mass of solid substances molten base
  - If less – with  $\frac{1}{2}$  from mass of solid substances liquid similar to base.

Rp.: Furazolidoni 0,004

Olei Cacao 1,0

M., f. supp.

D. t. d. № 15.

S. 1 suppository into the rectum 10-15 days.

highest single dose (HSD) Furazolidoni 0,2

highest daily dose (HDD) Furazolidoni 0,8

SD – 0,004; DD – 0,004

## **WCP** *(Reverse side)*

*Furazolidoni  $0,004 \times 15 = 0,06$*

*Olei Cacao  $1,0 \times 15 = 15,0$*

*Total mass  $15,0 + 0,06 = 15,06$*

*Mass of one suppository  $15,06:15 \approx 1,0$*

*% of furazolidoni*

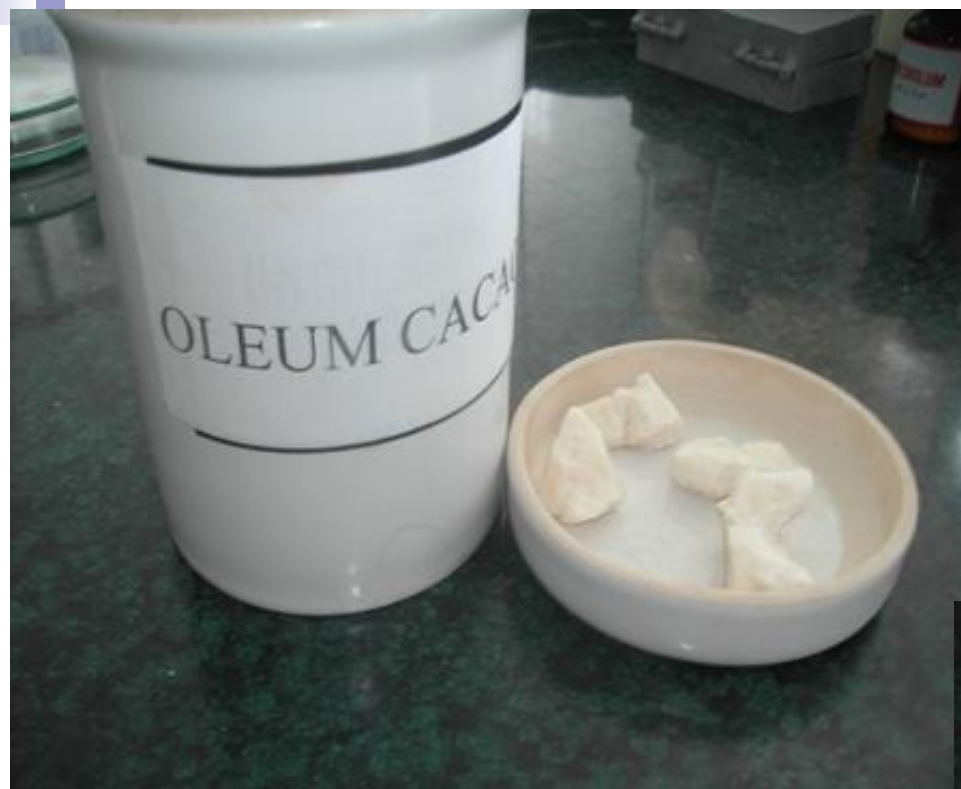
*$15,06 - 100 \%$*

*$0,06 - x \%$ ,  $X = 0.39\% < 5 \%$*

*Mass of sunflower oil  $0,06/2 = 0,03 \approx 1 \text{ drop}$*

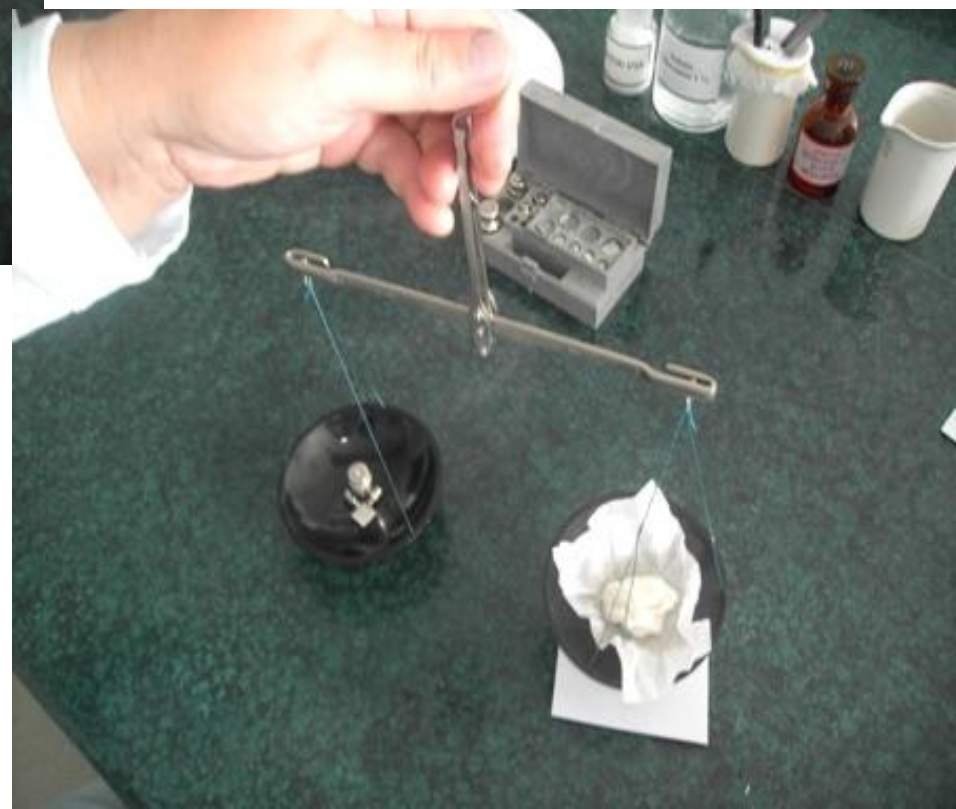
## Technology

- In a mortar placed 0,06 Furazolidoni and grind in the solid form, then add 1 drop of sunflower oil (according to the Deryagin rule). Add 15,0 of crushed cocoa butter, carefully grind for received a homogeneous plastic mass. If necessary, add anhydrous lanolin.
- The ready suppository mass weighed (mass write down on the back of the recipe) and transferred into a glass of pill machine, form a roll, with cutter divide into equal portions and from each portion pump out suppositories.
- These suppositories wrapped in a capsule, put in a cardboard box, paste the recipe number and fill the front of WPC.







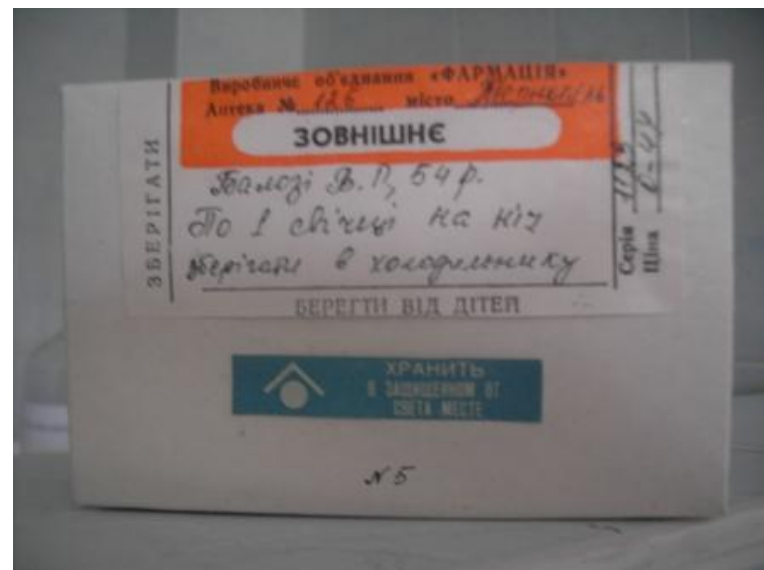
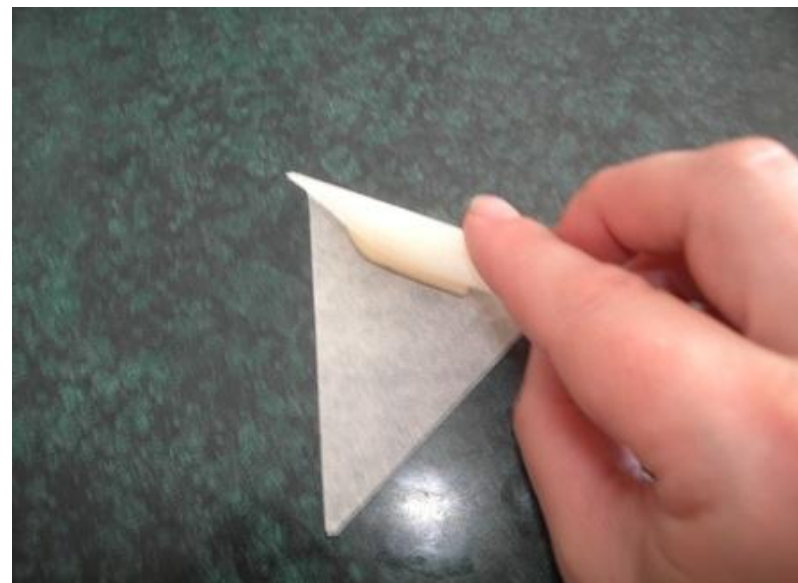












# WCP

*(Front side)*

*Date      № recipe*

*Furazolidoni 0,06*

*Olei Helianthi gtt. I*

*Olei Cacao 15,0*

*Lanolini anhydrici q.s.*

*Massae suppositoriorum 15,06*

*1,0 N. 15*

*prepared*

*checked*



Rp.: Anaesthesini 0,5

Olei Cacao q.s.

Misce, fiat suppositorium

Da tales doses № 10

Signa. 1 suppository into the rectum



# WCP (r.s.)

Anaesthesini  $0,5 * 10 = 5,0$

Olei Cacao  $3 * 10 = 30 - 5 = 25,0$

% Anaesthesini

$30 - 100\%$

$5,0 - x \%, \quad x = 16,7 \% > 2 \%$

# Suppositories with substances which entered by the type of solution

- If substances which are soluble in base less than 5% - ground from a few drops of vegetable oil
- if more than 5%, with part of the melted cocoa butter (butter is desirable not to melt if it is normal plasticity)



Rp.: Anaesthesini 0.02

Olei Cacao 2.0

M., f. supp.

D. t. d. N. 10.

s. 1 suppository into the rectum

highest single dose Anaesthesini 0,5

highest daily dose Anaesthesini 1,5

# WCP

*(Reverse side)*

*Anaesthesini  $0,02 \times 10 = 0,2$*

*Olei Cacao  $2,0 \times 10 = 20,0$*

*Massae suppositoriorum  $20,0 + 0,2 = 20,2$*

*mass of a 1 suppository  $20,2:10 = 2,02$*

% Anaesthesini

$20,2 - 100\%$

$0,2 - x \%, \quad x = 0,9 \% < 2 \%$

*Olei Helianthi 0,2 gtts. IV*

- Technology.
- In a mortar placed 0,2 anaesthesin, first grind down in dry form and then add 4 drops of sunflower oil, dissolve, add 20,0 of crushed cocoa butter, carefully grind for received a homogeneous plastic mass. If necessary, add anhydrous lanolin.
- The ready suppository mass weighed (mass write down on the back of the recipe) and transferred into a glass of pill machine, form a roll, with cutter divide into equal portions and from each portion pump out suppositories.
- These suppositories wrapped in a capsule, put in a cardboard box, paste the recipe number and fill the front of WPC.

# WCP

*(Front side)*

*Date      № recipe*

*Anaesthesini 0,2*

*Olei Helianthi gtts. IV*

*Olei Cacao 20,0*

*Lanolini anhydrici q.s.*

*Massae suppositoriorum 20,2*

*2,02 N. 10*

*prepared*

*checked*

# Suppositories with substances which entered by the type of emulsion

- If substances which are soluble in water less than 5%- dissolved in a few drops of water and add crushed cocoa butter,
- if more than 5%, enter by the suspension type with a part of the melted cocoa butter by rule of Deryagin  $\frac{1}{2}$  the mass of solids.

Rp.: Novocaini 0,1

Olei Cacao q.s.

M. f. supp.

D. t. d. N. 6.

S. To enter in a rectum on a 1 suppository (at pains).

HSD Novocaini 0,25

HDD Novocaini 0,75

SD – 0,1; DD – 0,1



# WCP

*(Reverse side)*

*Novocaini 0,1 x 6 = 0,6*

*Massae suppositoriorum*

*3,0 x 6 = 18,0*

*Olei Cacao 18,0 – (0,1 x 6) = 17,4*

*mass of 1 suppository 18,0 : 6 = 3,0*

## Technology.

- In a mortar dissolve 0,6 novocaine in a few drops of water. Then for a few portions add 17,4 of crushed cocoa butter, carefully grind for received a homogeneous plastic mass. If necessary, add anhydrous lanolin.
- The ready suppository mass weighed (mass write down on the back of the recipe) and transferred into a glass of pill machine, form a roll, with cutter divide into equal portions and from each portion pump out suppositories.
- These suppositories wrapped in a capsule, put in a cardboard box, paste the recipe number and fill the front of WPC.

# WCP

*(Front side)*

*Date № recipe*

*Aquae purificatae q.s.*

*Novocaini 0,6*

*Olei Cacao 17,4*

*Lanolini anhydrici q.s*

*Massae suppositoriorum 18,0*

*3,0 N. 6*

*prepared*

*checked*



Rp.:Extracti Belladonnae 0,015

Novocaini

Streptocidi ana 0,1

Solutionis Adrenalini hydrochloridi 0,1%  
gtts.III

Olei Cacao 3,0

Misce, ut fiat suppositorium. Da tales doses  
numero 12.

Signa. To enter in a rectum on a 1 suppository

# Doses

Novocainum: HSD – 0,25 SD – 0,1

HDD – 0,75 DD – 0,1

Streptocidum: HSD – 2,0 SD – 0,1

HDD – 7,0 DD – 0,1

Extractum Belladonnae spissum: БРД – 0,05 SD – 0,015

HDD – 0,15 DD – 0,015

Solutio Adrenalini hydrochloridi 0,1%: HSD – 1 ml SD – 0,12 ml

HDD – 5 мл DD – 0,12 мл

# WCP (r.s.)

Novocainum  $0,1 \times 12 = 1,2$

Streptocidum  $0,1 \times 12 = 1,2$

Alcohol: 1,0 – 5 drops.

$1,2 - X$        $X = 6$  drops.

Solutio Adrenalini hydrochloridi 0,1%     $3 \times 12 = 36$  drops

Sol. of dense Extractum Belladonnae (1:2)  $0,015 \times 2 \times 12 = 0,36$

0,1 – 4 drops

$0,36 - X$      $X = 14,4$  drops = 14 drops

Olei Cacao  $3,0 \times 12 = 36,0$

***Total mass  $1,2 + 1,2 + 0,36 + 36 = 38,76$***

***mass of 1 suppository : 3,23***

# WCP (*Front side*)

*Date*

*№ recipe*

Streptocidi 1,2

Novocaini 1,2

Sol. Adrenalini hydrochloridi 0,1% gtts.36

Extracti Belladonnae soluti (1:2) gtts. XIV

Olei Cacao 36,0

Lanolini anhydrici g.s.\_\_\_\_\_.

Massae suppositoriorum 38,76

3,23 № 12

*THANK YOU FOR ATTENTION!!!*

