

Semester II.

Pharmacology

Laboratory 12

Medication of skin and mucosa

- 1. Pharmacognosis**
- 2. Laboratory**
- 3. Pharmaceutical technique**
- 4. Pharmacography**
- 5. Classification**

The astringent action of the tannin on the skin

Comparing the results at the membrane where the tannic acid buffer was, the skin is hardened, dry, without gloss, and near the inter-digital membrane the obvious decrease in blood vessel size is observed. Placed under high humidity, it is observed that at the foot where physiological serum has been applied the skin moisture returns to normal, as opposed to the opposite foot where tannic acid was applied. Conclusions are drawn on the astringent action at the tegument level of various drugs.

The astringent action of tannin on tissue albumin

While where it used physiological serum buffer the musculature retains its normal appearance, in the member where the tannic acid was applied, the musculature has a pale, dry and hardened appearance following the coagulation of a tissue albumin layer that forms a protein tanning film.

The astringent action of zinc sulphate

In a rabbit, the conjunctival mucous membranes are examined, observing their normal appearance. In the conjunctival sac of one of the eyes, 2 drops of soil are placed. 1% zinc sulphate. A vasoconstriction characterized by the pallor of the conjunctival mucous membranes will appear, which is very evident compared to the normal appearance.

There will be discussion about land use. 1% zinc sulphate in ophthalmology.

The haemostatic action of ferric chloride

A skin area with a hemorrhage it is wiped with a buffer with physiological serum, noting that the bleeding continues in the same manner. A solution of 2% of ferric chloride will stop bleedind. The effect is due to the astringent action of ferric chloride.

Irritating action on the skin of mustard flour

Take 20-30 g of mustard flour as fresh as possible and mix in a bowl of warm water until a paste is obtained. It is then spread on a double layer of gauze and covered with a strip of cloth. A student discovers his arm and applies mustard flour (sinapism) with the gauze part on the skin of the arm, until the heat and slight bites appears.

The irritating action of mustard flour is discussed which, depending on the duration, can become revulsive.

Mustard flour contains a glycoside sinigrin and a myosin-specific ferment. In contact with water, the enzyme solubilizes and acts on the glycoside it hydrolyzes, giving rise to allyl isosulfocyanate, which is a volatile irritating oil.

It is discussed the use of synapisms, in the congestive phase of the pneumonia, to achieve a derivative effect.

Applying a colloidal film

The colloid is a 4% nitrocellulose solution in ether and is used on the skin for protective purposes.

A collodium film is applied to a student. Evaporation of the ether reveal a transparent white film that tightens the skin.

Comparatively, an elastic collodium film is applied (prepared from 97 parts of Collodium + 3 p. Castor oil). It is observed that at this level the skin does not shrink anymore, the collodium film being elastic.

In both cases, the removal can only be done in ether or alcohol. It will be discussed the protective role of the collodion, and its uses in various local conditions.

Applying a plaster bandage

In a dog, the hair is removed from the hind limbs. Then a non-removable gypsum bandage is prepared (a paste made of 2 p gypsum + 1 p water spread on a gauze strip) and is applied by winding over a layer of wool to one of the hind limbs.

An identical bandage with syrupy sodium silicate sol. 30-35% is applied to the opposite member. The curing time is compared, after which their weight is compared. It is found that the gypsum bandage heals much faster than the syrupy sodium, but instead it is much softer than the last.

Conclusions are drawn about their use in vet medicine.

3. Laboratory

The absorbent action of medicinal charcoal

Prepare a 1% methylene blue solution of which 10 ml are taken in two tubes. In one of the tubes, add 0.5 g of activated medicinal charcoal (preheated). In the other test tube used 0.5 g of an inert powder (e.g. talcum) is added. The tubes stirred for 10-15 sec. and then allowed to settle. The contents of each tube are filtered separately. It will be found that in the first tube the solution of methylene blue has completely discolored, the dye being absorbed on the coal, as opposed to the control that retains blue color.

Discussions how the medicinal charcoal acts as an absorbent, the role of activation in increasing the adsorbent capacity as well as the occurrence of the elution phenomenon.

It is also possible to demonstrate how the alkaloids and other toxic substances are absorbed on the coal.

Demonstration of wool hydrophilicity

The medicinal wool is made from skimmed cotton. Through its degreasing it becomes hydrophilic. This hydrophilicity is useful for the absorption of organic fluids such as blood in bleeding, wound secretions, etc.

The hydrophilic check is done according to Pharmacopoeia: in a 1000 mL cylinder filled with fresh boiled and cooled water at 20°C, a cotton square with a side of 2 cm is placed on the surface of the water, weighing approx. 0.5 g cut from inside a package. In the case of a good hydrophilic it immediately absorbs the water and sinks in less than 10 seconds.

3. Pharmaceutical technique

Simple ointment preparation

The simple ointment is an official preparation made from 9 ml white Vaseline and 1 ml anhydrous lanolin. For the preparation of 20 g of simple ointment, weigh 2g of anhydrous lanolin and 18g of white petroleum jelly, melted.

Burow liqueur preparation

The Burow liquor is aceto-tartaric alumin solution. However, it is easier to prepare using Burowin tablets. These are typical products and consist of two tablets packed together, one is white-gray, containing 2.2g of calcium acetate and the other one of pink color, containing 0.02g of tartaric acid and 3.0g. of ammoniacal aluminum sulphate.

Tablets are dissolved separately in 250 ml of water. The two solutions are then mixed and the precipitate is allowed to deposit. The supernatant is decanted and used in the form of locally applied compresses with anti-inflammatory (anti-inflammatory) effect.

Preparation of starch glycerol

The glycerol ointment, or what is called starch glycerolate, is also an official preparation containing 93g% glycerol. It is prepared in the following composition:

Amylum tritici (amidon)	7.0
Methylum p-hydroxybenzoicum (nipagin)	0.2
Aqua distill. (apă distilată)	7.0
Glycerolum (glicerină)	93.0

Starch and nipagin are placed in a porcelain capsule and pour hot water over them, triturating until dissolved and homogenized. The heated glycerin is then added to the water bath at 90C and continued heating on the asbestos sieve, at low flame until jellification. It is then filled with hot water until it is even.

Preparation of the ointment with mercury biiodine

The vesicant ointment with mercury biiodine is used in vet medicine and is prepared in a proportion of $1/6$ - $1/10$ active substance and petroleum jelly.

To prepare 20 g $1/8$ ointment, weigh 2.5g of mercury and 17.5g of white petroleum jelly. The mercury biiodine will be mixed with petroleum jelly, after which gradually added to homogenize.

The ointment is applied to skin, being rubbed on the spot for 5-10 minutes. It has the effect after 1-2 days the appearance of a local inflammation with the skin vesiculation in the applied area. Care should be taken that the animal does not lick this ointment as it is toxic and irritating.

There will be discussed about the use and utility in the vet case.

4. Pharmacography

Rp./

Carbo medicinalis
Zinci oxydati aa 5.0
M.f pulv.
D.S. ext in wounds

Rp./

Cantharis pulv. 5.0
Vaseline ad. 30.5
M.f ung.
D.S. ext. to horse (vesicant ointment)

Rp./

Oleum jecoris
Zinci oxydati aa 10.0
Vaseline ad 100.0
M.f ung.
D.S. ext. in dermatitis

Rp./

Bismuti subnitrici 2.0
Zinci oxydati
Oleum jecoris aa 5.0
Vaseline ad 100.0
M.f ung.
D.S. ext in humid eczema

Rp./

Alcool camphorate
Alcool saponated aa 100.0
Ulei de terebentină 20.0
M.f. sol.
D.S. ext. frictions in tendinitis

Rp./

Cupri sulfurici 10.0
Vaseline 30.0
M.f. ung.
D.S. ext. (caustic ointment)

Rp./

Acidi salicylici 5.0
Vaseline ad 50.0
M.f ung.
D.S. ext. (cheratolithic ointment)

Rp./

Acidi tanici 10.0
Zinci oxidaty 4.0
Amyli tritici ad 40.0
M.D.S. ext. (astringent powder)

5. Classification

Drugs acting on skin and mucosa		
Group	Type	Representatives
Emollients	Oils	Sunflower oil (Oleum helianthi), olive oil (Ol. olivarum), Linen oil (ol lini), Vaseline oil (Ol. vaselini), Fish oil (Ol. jecoris)
	Viscous and Hard	lanolin (anhidric și hidratated), axungia, cacao butter (butir cacao), bovine and ovine tallow, spermacet, bee wax, vaseline, paraffin
	Alcoolic	Glicerin (gliceroli)
	Mucilages	tragacantha gum, amidons (amillium tritici, orizae, maidis, solani) Marshmallow root, linen seeds (semen lini)
Sweet substances		Licquorice, sugar, lactose, melases
Absorbant and protectors		medicinal coal, caolin, talc, zinc oxide, lycopodium powder, coloidium, gips, sodium silicate, hydrophilic wool
Astringent	Organics	aluminium and potasium sulphate (Burowin), zinc sulphate and oxide, ferous sulphate, ferric chlorure, copper sulphate, silver nitrate
	Vegetal	Tannin and tannifer drogs (oak tree bark, folia salviae, folia uvae ursi, folia sanguisorba
Iritants and revulsives		terebentin oil, camphor, mustard powder, diluted amoniac, cantaride powder, crotone oil, mercury biiodure, emethic