

Section : 5

Dispensing solution

(2) alcoholic solution :

Def : it is chemical substance that dissolved in alcohol .
mainly used externally .

Tincture: it is alcoholic or hydro alcoholic solution
prepared from vegetable drugs or from chemical substances.

Ex: tincture iodine (chemical substance)

Tincture belladonna (vegetable substance)

A) Liquor iodonitis (Tincture iodine 2.5%)

composition of the tincture iodine

1) iodine metallic

2) potassium

iodide

3) dist. Water

4) Alcohol 90%

- it has several conc. So the uses of Tincture iodine depend on its concentration.

Prepare the following prescription

- R/
- iodine 0.5 gm. .
- Pot. Iodide 0.5 gm.
- dist. Water 0.5 ml
- Alcohol 90% add up to 20 ml
- m.ft. sol. send 50 ml
- sig. to be used as wound dressing

* Calculation

1- iodine 0.5 gm.

$$20 \text{ ml} \rightarrow 0.5 \text{ gm.}$$

$$50 \text{ ml} \rightarrow ? \text{ gm.}$$

$$= \frac{50 \times 5}{20 \times 10} = \frac{5}{4} = 1.25 \text{ gm.}$$

2- Pot. Iodide 0.5 gm.

$$20 \text{ ml} \rightarrow 0.5 \text{ gm.}$$

$$50 \text{ ml} \rightarrow ? \text{ gm.}$$

$$= \frac{50 \times 5}{20 \times 10} = 1.25 \text{ gm.}$$

3- dist. Water as iodine = 1.25 ml

***Prescription after calculation**

R/

iodine 1.25 gm.

Pot. Iodide 1.25 gm.

dist. Water 1.25 ml

Alcohol up to 50 ml

*** procedure**

- weight the required amount of pot. Iodide then put in clean and dry beaker
- Add the calculated volume of dist. Water to pot. Iodide
- make shaking till dissolving of pot. Iodide in water
- add the weighted amount of iodine to pot. Iodide sol.
- through shaking till complete dissolving of iodine in pot. Iodide sol.
- transfer the prepared solution into graduate cylinder
- add alcohol gradually to reach the required volume
- put the preparation in a bottle
- stick the red label on the bottle

*** Mechanism of action**

(1) Iodine

1- it the base of prescription

2- non metallic element has irritant effect

3- has germicidal & fungicidal action so it is lethal to fungi, bacteria, amoeba through attacking the microbial protoplasm

4- it has harmful effect on A' tissue when applied on wound directly as it delay healing .

(N.B.) Iodine not soluble in water but it soluble in iodine sol.

Ex pot. Iodide sol.

(2) Pot. Iodide

- 1- act as adjuvant help in dissolving of iodine
- 2- used in chronic inflammation as it convert it to acute as it has fibrinolytic action (as it make lysis to fibrin material and cause irritation leading to hyperemia and increase blood supply converting it to acute type)

(3) Alcohol

1- act as vehicle

2- by itself has potent antiseptic action → dehydration of m.os

3- it help in evaporation of tincture

4-Haemostatic action by reducing time of bleeding (make vasoconstriction to small blood vessels and freezing)

***Uses :-**

it depend on its concentration

- 1) 2.5 % conc. → antiseptic for abrasion and wound
- 2) 7 % conc. → sterilization for surgical instrument
- 3) 5 % conc. → has counter irritant used in treatment of chronic inflammation & bursitis.
- 4) 3-5 % conc. → for sterilization of skin prior to surgery
- 5) 7-10 % conc. → as antifungal in case of Ring worm

(B) Lugol's solution 5% conc.

- it is watery solution not alcoholic
- it has fixed concentration as antiseptic 5 %
- mainly it has obstetrical usage in case of endometritis as endometrial wash . so it used in case of abortion & pyometria & endometritis

Prepare the following prescription:

$$R_{/}$$

iodine 5 gm.

Potassium iodide 5 gm.

dist. Water up to 100 ml

m.ft. Lugol's solution send 80 ml of 0.1 %

sig. Applied on the affected part of skin.

N.B. prescription usually present in the form of stock solution

Calculation

$$\text{amount of stock solution} = \frac{80 \times 0.1}{5} = 1.6 \text{ ml stock}$$

1.6 ml from stock solution and complete by water till reach the required volume. (80 ml).

* Prescription after calculation

R/

lugol's 1.6 ml

mft. Sol. 0.1 % sends 80 ml

sig. As directed

Procedures:

Prepare stock solution.

- Weighting required amount of pot. Iodide 5 gm and put in clean beaker
- Add 10-20 ml distilled water for dissolvment of pot. Iodide and form pot. Iodide sol.
- Weight the required amount from iodine then add it to pot. Iodide sol with good mixing till complete solubility of iodine.
- Complete by water till reach the required volume.

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Preparation of dilution.

- Take 1.6 ml (calculated amount) from stock solution and put in graduated cylinder then complete by distilled water till reach the required volume.
- Transfer sol in to brown container with sticking red label including the concentration

Uses:

1-Mainly in obstetrical

2- abortion & pyometria & endometritis

3-Befor artificial insemination

N.B: may injected i.m in very diluted solution (0.05) in heifer suffering from iodine deficiency (anestrus) or in case of thyroxin deficiency.

(3) keratolytic fungi static sol.

- prepare the following prescription

R/

salicylic acid 2 gm.

Benzoic acid 2 gm.

Resorcinol 2 gm.

Alcohol 90% add to 100 ml

m.ft sol. send 75 ml

sig. apply on affected part of skin

* Calculation

1) salicylic acid

2 gm. \rightarrow 100 ml

? gm. \rightarrow 75 ml

$$= \frac{2 \times 75}{100} = 1.5 \text{ gm.}$$

2) Benzoic acid = 1.5 gm.

3) resorcinol = 1.5 gm.

* Prescription after calculation

R/

salicylic acid 1.5 gm.

Benzoic acid 1.5 gm.

Resorcinol 1.5 gm.

m.Ft sol. up to 75 ml Alcohol

sig. applied on affected part of skin

*** procedure**

- weight the required amount of salicylic acid, Benzoic acid , Resorcinol then put in clean and dry beaker and dissolved in a part of alcohol
- transfer the prepared solution into graduate cylinder
- add alcohol gradually to reach the required volume
- put the preparation in a bottle
- stick the red label on the bottle

*** Action**

1) salicylic acid

- 1- has antifungal and antibacterial action
- 2- keratolytic action through sloughing of skin (hardened epithelium) result from hypo nutrition (through increasing solubility of keratine layer)
- 3- Analgesic action
- 4- help in warts (benign growth in the skin)

2) Benzoic acid

- 1- as preservative to sol.
- 2- has fungi static and bacteriostatic action (through changing PH media of the skin)

3) Resorcinol

- 1- mild keratolytic action through irritation of surrounding tissues (in case of chronic inflammation)
- 2- in case of Acne through liberation of nascent oxygen in Acne vulgaris virus.
- 3- antibacterial action through precipitation of protein of M.Os.

4) Alcoholic

1- has antiseptic action

2- reduce bleeding through vasoconstriction to small B.vs.

*** Uses**

1- used in case of callus tissue formation

2- keratolytic action help in sloughing of fibrous or granulation tissues