

Section : 6

Dispensing Emulsion

*** Emulsion:**

- it is preparation of 2 immiscible liquid. One of them is broken into minute globules each surrounded by thin film of emulsifying agent .
- this emulsion is prepared to obscure and avoid :-
 - * un palatability of the drug .
 - * greasy character of the oil
- The emulsion may be used
 - * externally (red label)
 - * internally (white label)

Ex :-

- * Caster oil emulsion
- * cod liver oil emulsion

*** Emulsifying agent**

Def : it is substance that help in emulsifying the oily material of an emulsion.

Types of emulsifying agent

1) Gum acacia

- it is good emulsifying agent for both
 - * fixed oil
 - * volatile oil
- it is for internal use " internal preparation of emulsion "

2) Gum tragacanth

- it is emulsifying agent to volatile not fixed oil
- it help in stabilization of gum acacia emulsion

3) saponin

- it is emulsifying agent for both fixed and volatile oil
- for external use only as it is irritant to the bowel when taken orally .
- it make frothy blot .

4) soft soap or potassium hydroxide

- it is emulsifying agent for both fixed and volatile oils .
- for internal use only as purgative
- it has counter irritant action used in treatment of *sprain
*bruise

5) Wool fat = sheep fat

- it can absorb about 30% of water through capsulation and covering .

6) Resins

- it is emulsifying agent for fat produced by hydrolysis process during production of glycosides .

- mainly for external preparation as it has irritant action →
make regeneration to circulation, hyperemia ↑
vascularization

7) emulsifying wax

- it is emulsifying agent for external preparation but before use must be melted (on thawed)

8) Resorcinol

- it is emulsifying agent .

(NB)

1) any emulsion consists of 3 components → oil, water, emulsifying agent

2) The ratio between the components of emulsion depend on type of oil

*fixed oil

*volatile oil

Type of oil	Oil	Water	Acacia
A) fixed oil	4	2	1
B) volatile oil	2	2	1

3) to prepare emulsion of internal use contain Tragacanth and acacia in the same preparation you should add

Tragacanth : Acacia
one part : 15 part

Castor oil emulsion

-prepare the following prescription

R/

castor oil 16 ml

gum acacia 4 gm.

water up to 60 ml

m.ft emulsion send 120 ml

sig. one cup full when required

* Calculation

1) castor oil

$$16 \text{ ml} \rightarrow 60 \text{ ml}$$

$$? \text{ ml} \rightarrow 120 \text{ ml}$$

$$= \frac{16 \times 120}{60} = 32 \text{ ml of castor oil}$$

2) gum acacia

$$4 \text{ gm.} \rightarrow 60 \text{ ml}$$

$$? \rightarrow 120 \text{ ml}$$

$$= \frac{4 \times 120}{60} = 8 \text{ gm.}$$

* Prescription after calculation

R/

castor oil 32 ml

Gum acacia 8 gm.

water up to 120 ml

m.ft emulsion

sig. One cup full when required

*** Procedure**

- emulsion can be prepared by 2 methods

1) wet gum method

2) dry gum method

1) Wet gum method

→ **primary emulsion (gum acacia + water (double volume of gum0**

(White creamy homogenous preparation that gives cracking sound by formation).

- Weigh the required amount of gum acacia 8 gm.

- Put 8 gm. In porcelain mortar

- Add 16 ml of water (double amount of gum acacia) and make trituration till

formation of uniform mucilage

- Add castor oil drop by drop while triturating rapidly and continuously till hearing cracking sound when emulsion is formed.

→ **Secondary emulsion (dilution of primary emulsion)**

(Means dilution of primary emulsion by distilled water and be ready for use)

- Add about 20 ml of water to primary emulsion
- Transfer the emulsion in clean and dry bottle and complete the volume by water (120ml).

2) Dry gum method(gum acacia + oil)

→ primary emulsion

- Weight the required volume of gum acacia 8 gm.
- Put the amount in mortar
- Add 32 ml of castor oil and triturate them
- Add 16ml of water (double amount of gum acacia) and triturate till obtain white cream colour compound and hear cracking sound that indicate formation of primary emulsion.

→ Secondary emulsion (Dilution of primary emulsion)

- Add 20 ml of water to primary emulsion & triturate.
- Transfer the emulsion to clean & dry bottle and complete the volume till 120 ml by water.
- Stick white label on the bottle and shake before use.

*** Mechanism of action**

(1) castor oil

- it is the base of prescription

→ **orally :-**

1- it is an irritant purgative as it converted to glycerol and ricinoleic acid that cause irritation to intestinal mucosa producing purgative action

- put in your mind using of castor oil emulsion produce griping due to irritation

2- it is preferable in treatment of food poisoning act as cathartic purgative (strong purgative)

3- it used before roentgen examination (x-rays) to make evacuation to intestinal contents .

→ **externaly :-**

1- it used as * hair tonic

* skin emollient in case of seborrheic dermatitis

(2) Gum acacia

- it used as * emulsifying agent

* Demulcent

(3) water

- it used as vehicle

*** Uses**

- 1- Treatment of constipation → irritant purgative
- 2- Treatment of food poisoning
- 3- before roentgen examination (x- ray)
- 4- externally as hair tonic

*** contraindication**

- it is contra indicated in case of

1) pregnancy .

as it may produce abortion

2) appendicitis

3) intestinal obstruction