

LINIMENTS

- The liniments are the liquid or semi-liquid preparations meant for application to the skin with friction and rubbing of the skin.
- Medicaments used in the liniments mainly possess analgesic, rubefacient, soothing and counter irritant or stimulating properties.
- Care should be taken to avoid the application of the liniment on to the broken skin as it may lead to excessive irritation.
- The liniments are not as smooth as lotions and hence are applied with friction or rubbing.
- The liniments may be alcoholic or oily solutions or emulsions.
- In alcoholic liniments, alcohol helps in the penetration of medicament into the skin and also increases its counter irritant and rubefacient actions.
- In oily liniments, arachis oil is commonly used which spreads more easily on the skin
- Soap is also included as one of the ingredients in some of the liniments which help in easy application of liniment on the skin.

Containers

The liniment should be dispensed in coloured fluted bottles in order to distinguish it from preparations meant for internal use.

Labelling

The label must state, "FOR EXTERNAL USE ONLY" and "SHAKE WELL BEFORE USE". The label should carry the Warning. "NOT TO BE APPLIED TO OPEN WOUND OR BROKEN SKIN."

Storage

Liniments should be stored in well closed, air tight container in cool place, since they may become damp in moist atmosphere.

Reference:

- C.V.S Subrahmanyam, Lab manual of Pharmaceutics, Vallabh Publications, Page no. 54-56.
- Sindhu Abraham, A Practical Manual of Pharmaceutics, Pharma Med Press Publications, Page no. 49 -51.

EXPT NO:

DATE:

TURPENTINE LINIMENT IP

Prescription no. 8

Date:/...../.....

Name:

Age:

Sex:

Address:

R

Soft soap	90 g
Camphor	50 g
Turpentine oil	650 ml
Purified water q.s	1000ml

Prepare and send 20ml

Principle:

Turpentine liniment is used as counter irritant and rubefacient. Camphor is soluble in turpentine oil, but not in water. At the same time, turpentine is immiscible with water. Hence two-phase system like emulsion can be prepared. Here oil in water type emulsion is formed using soft soap as emulsifying agent. Soft soap is made by saponification of vegetable oils or higher fatty acids using potassium or sodium hydroxide. Turpentine oil remains as dispersed phase and water acts as continuous phase. Emulsion type of turpentine liniment is viscous preparation therefore it is easy to rub on the skin

Procedure:

Depending on the quantity of preparation to be submitted, calculate the working formula.

- In a dry container dissolve camphor in turpentine oil.
- Weighed soft soap is mixed with little quantity of purified water in a motor.
- The camphor solution is gradually added to the soap mixture with trituration and continued until a thick creamy emulsion is formed.
- Allow it to stand for few minutes for the separation of air bubbles.
- Sufficient purified water is added the required volume.
- The preparation is shaken to ensure uniform distribution of phases.
- The preparation is then transferred to a light resistant container.
- Add sufficient purified water to produce the required volume.
- Cap the bottle, label, polish and submit.

Category: Counter irritant, Rubefacient

Direction: To be applied on the skin with friction.

Storage: Store in a tightly closed container in a cool place.

Auxiliary Labels: FOR EXTERNAL USE ONLY

SHAKE WELL BEFORE USE

NOT TO BE APPLIED TO WOUNDS AND BROKEN SKIN

Report:

Prepared and submitted 20ml of

Reference:

- C.V.S Subrahmanyam, Lab manual of Pharmaceutics, Vallabh Publications, Page no. 57-58.
- Dr. Dipak Kumbhar, Practical Book of Pharmaceutics –I, Global Education Limited, Page no. 50-51

EXPT NO:

DATE:

CAMPBOR LINIMENT IP

Prescription no. 9

Date:/...../.....

Name:

Age:

Sex:

Address:

R

Camphor	200 g
Arachis oil	800 ml

Prepare and send 20ml

Principle:

Camphor liniment is used as an antipruritic and counter irritant. This solid can be supplied in a liquid form using any one of the vehicles, namely alcohol, chloroform, volatile oils, fixed oils etc. Liquid preparations are convenient to apply on topical areas. As liniments are applied on the restricted topical areas with massage, their preparations must be highly viscous. To achieve this property, it is preferred to dissolve the camphor in fixed oils. Camphor dissolved in arachis oil produces ideal properties for a liniment. Dissolution of camphor can be further enhanced by heating the dispersion.

Procedure:

Depending on the quantity of preparation to be submitted, calculate the working formula.

- Weighed quantity of camphor is dissolved in weighed quantity of arachis oil in a dried closed vessel (light-resistant container).
- The vessel is immersed in warm water bath with constant agitation.
- The container is capped, labelled, polished, and submitted.

Category: Antipruritic, Counter irritant

Direction: To be applied on the skin with friction.

Storage: Store in a tightly closed container in a cool place.

Auxiliary Labels: FOR EXTERNAL USE ONLY

SHAKE WELL BEFORE USE

NOT TO BE APPLIED TO WOUNDS AND BROKEN SKIN

Report:

Prepared and submitted 20ml of

Reference:

- C.V.S Subrahmanyam, Lab manual of Pharmaceutics, Vallabh Publications, Page no. 57-58.
- Sindhu Abraham, A Practical Manual Pharmaceutics, Pharma MedPress, Page no. 51-52.

SUSPENSIONS

Suspensions are biphasic liquid dosage form of medicament in which finely divided solid particles ranging from 0.5 to 5.0 micron are suspended or dispersed in liquid or semisolid vehicle.

Qualities of good suspension

- Particles dispersed should not settle down rapidly and should re-disperse on shaking.
- Particles should not form a cake.
- Viscosity should be optimum.
- They should be chemically stable.

Suspensions are of two types Flocculated and Non-Flocculated suspensions. In flocculated suspensions, the particles form loose aggregates and form a network like structure where as in non-flocculated system they do not. Rate of sedimentation is high in flocculated suspension whereas in non-flocculated it is very low. In flocculated suspension, the particles are loosely packed and do not cake whereas in non-flocculated the particles are closely arranged and they form a cake. Flocculated suspensions are easy to re-disperse where as non-flocculated are not. Flocculated suspensions do not give a pleasing appearance whereas non-flocculated give a pleasing appearance as the floccules do not stick to the sides of the container where as in flocculated they do.

Formulation:

Suspensions mainly contain;

- Flocculating agent: which ensure particles are well dispersed in the vehicle Eg: Tweens, spans etc.
- Suspending agents: They are added to increase the viscosity of continuous phase so that particles remain suspended for long time. Eg: Sodium CMC, HPMC, MC, CMC.
- Wetting agents: They are added to reduce the interfacial tension between solid and liquid medium producing suspension of desired quality. Eg: Glycerine, Tragacanth, glycols, polysorbates.
- Dispersing agents: They increase the zeta potential on the particles of the suspensions and do not allow the particles to settle down. Eg: Stearates.
- Preservatives: They are added to prevent microbial growth in the suspensions. Eg: Sodium benzoate, Methyl and propyl parabens.
- Organoleptic additives: They are added as colours, flavours and sweetening agents.

Advantages

- Suspension can improve chemical stability of certain drug. Eg: Procaine penicillin G Drug
- Suspension exhibits higher rate of bioavailability than other dosage forms
Solution > Suspension > Capsule > Compressed Tablet > Coated tablet
- Duration and onset of action can be controlled eg. Protamine zinc-insulin suspension.
- Suspension can mask the unpleasant/ bitter taste of drug e g Chloramphenicol

Disadvantages

- Sedimentation of solids occasionally gives poor form of product .
- It may lead to caking (formation of compact mass), which is difficult to dispense.
- Dose precision cannot be achieved unless suspensions are packed in unit dosage forms.

- Sometimes microbial contamination takes place if preservatives are not added in accurate proportion.
- A suspension being a bulky product, transportation cost is high.

Applications

- Suspension is usually applicable for drug which is insoluble (or) poorly soluble eg: Prednisolone suspension.
- To prevent degradation of drug or to improve stability of drug eg. Oxytetracycline suspension.
- To mask the bitter taste of unpleasant drug e.g. Chloramphenicol palmitate suspension.
- Suspension of drug can be formulated for topical application e.g. Calamine lotion
- Suspension can be formulated for parenteral application in order to control rate of drug absorption e.g. Penicillin procaine
- Vaccines as an immunizing agent are often formulated as suspension e.g. Cholera vaccine
- X-ray contrast agent are also formulated as suspension e.g. Barium sulphate for examination of alimentary tract.

Auxiliary Label

SHAKE WELL BEFORE USE

Storage

Store in a tightly closed container. Do not keep in cold place.

Reference:

- C.V.S Subrahmanyam, Lab manual of Pharmaceutics, Vallabh Publications, Page no. 45-46.
- Dr. Dipak Kumbhar, Practical Book of Pharmaceutics –I, Global Education Limited, Page no. 34-36.

EXPT NO:

DATE:

CALAMINE LOTION IP

Prescription no. 10

Date:/...../.....

Name:

Age:

Sex:

Address:

R

Calamine	15 g
Zinc oxide	5 g
Bentonite	3 g
Sodium citrate	0.5g
Liquefied phenol	1.5ml
Glycerol	5 ml
Purified water q.s	100ml

Prepare and send 20ml

Principle:

: It is a suspension containing in diffusible solids like calamine and zinc oxide. Calamine is a mixture of 98% zinc oxide with small portion of ferric oxide. Ferric oxide imparts a distinctive pink color to the zinc oxide. Calamine acts as an astringent, soothing and protective agent. Zinc oxide acts as astringent and antiseptic. Both calamine and zinc oxide are in diffusible in nature to make them diffusible uniformly in the vehicle; bentonite is used as a suspending agent.

Bentonite is a natural colloidal hydrated aluminum silicate; it is insoluble in water but swells up and forms magma with little higher viscosity. When bentonite swells up it makes the preparation viscous. So that it is difficult to pour from the container. Hence sodium citrate is incorporated which causes partial deflocculation of the calamine and also transforms the bentonite form, from gel to a solution form and hence reduces the viscosity of the preparation. Sodium citrate is also used as a chelating agent, to chelate the free iron of ferric oxide. It also acts as a buffer and maintains the PH appropriate for the skin. Liquefied phenol is used as an antiseptic and preservative. Glycerin is used as humectant to keep the skin moist and to give cooling sensation and soothing effect to the skin. Purified water is used as a vehicle in the preparation

Procedure:

Depending on the quantity of preparation to be submitted, calculate the working formula.

- Clean and dry all glasswares.
- Weigh calculated quantity of all the ingredients.
- Calamine, zinc oxide, bentonite are taken in a mortar and powdered well.
- Sodium citrate was dissolved in 3/4th of purified water and then liquefied phenol and glycerin are added and triturated well, then it is made up to the required volume with the addition of rose water.

- It is then transferred to a suitable container and dispensed with a suitable label.

Category: : Topical protectant, Soothing agent, Astringent and Antiseptic

Direction: To be applied on the skin as required and allowed to dry.

Storage: Store in an airtight container in a cool place

Auxiliary Labels: FOR EXTERNAL USE ONLY

SHAKE WELL BEFORE USE

Report:

Prepared and submitted 20ml of

Reference:

- C.V.S Subrahmanyam, Lab manual of Pharmaceutics, Vallabh Publications, Page no. 51-53.
- Sandip M Honmane, Dhanraj R Judge, A Practical Manual of Pharmaceutics – I, Pharma Carrer Publications, Page no. 40 -42.

EXPT NO:

DATE:

MAGNESIUM HYDROXIDE MIXTURE BPC

Prescription no. 11

Date:/...../.....

Name:

Age:

Sex:

Address:

R

Light magnesium oxide	52.5 g
Sodium hydroxide	15 g
Magnesium sulphate	47.5 g
Chloroform	2.5ml
Purified water, boiled & cooled cool q.s	1000ml

Prepare and send 20ml

Principle:

Milk of magnesia is used as an antacid and laxative. Magnesium hydroxide mixture BPC contains an aqueous suspension of hydrated magnesium oxide containing not less than 7.0% w/w and not more than 8.5% w/w of magnesium hydroxide. It cannot be directly prepared by suspending magnesium hydroxide in water. Magnesium hydroxide is prepared *in situ* using magnesium sulphate, sodium hydroxide and light magnesium oxide. This exothermic reaction (heat is liberated) and are explained as follows:

Double decomposition reaction:



Hydration reaction:



Magnesium hydroxide prepared from MgSO_4 is gelatinous in nature, whereas magnesium hydroxide prepared from magnesium oxide is heavy and settle fast. Therefore magnesium hydroxide is prepared from both Magnesium sulphate and light magnesium oxide. The prepared magnesium hydroxide will remain in colloidal condition for a longer time without formation of clumps. Thus, magnesium hydroxide preparation is neither too viscous to obstruct pouring from the container nor too thin to allow undue setting. After filtration, the precipitate of Magnesium hydroxide is washed several times with water to remove sulphate ion. Sodium sulphate is soluble in water. The mixture must be free from sulphate ions, otherwise purgative action of sodium sulphate precipitates. Further it also causes constipation problem at a later period. After thorough washing of the filter cake, the pH of the final product is nearly 10. Chloroform act as a preservative. If glass containers are to be used for supplying this formulation, 0.1%w/v citric acid may be added to minimize the leaching of alkali from glass containers into milk of magnesia.

Procedure:

Depending on the quantity of preparation to be submitted, calculate the working formula.

- Dissolve sodium hydroxide in purified water in a mortar.

- Add light magnesium oxide to the above. Triturate this to form a smooth cream.
- Dissolve magnesium sulphate in purified water and is place into another mortar
- Transfer the suspension of 2 in a thin stream into a solution of step 3 with continues trituration.
- Allow the precipitate to settle and decant the clear liquid & transfer the precipitate into a calico strainer
- Wash the precipitate with purified water several times until the precipitate is free from sulphate ion. This can be confirmed by test for sulphates.

Sulphate Test

Treat a few drops of washing with a few drops of barium chloride solution. If sulphate ions are present, the following reaction takes place:



- Mix the washed precipitate with purified water.

Test	Observation	Inference	Test	Observation	Inference
A few drops of solution + A few drops of barium Chloride reagent	No ppt, or doubt of forming a ppt	No reaction takes place	Add a Few drops of dilute HCl to the above mixture	Traces of ppt. dissolves or clear solution	Sulphate ions absent Stop washing
	White ppt. formed	Reaction Takes place		Ppt. insoluble	Sulphate ions present. Continue washing

- Add chloroform in above mixture. Make up the volume with purified water.
- Transfer the suspension into a tightly closed container
- Cap the container, label and dispense

Category: : Antacid, Laxative

Storage: Store in an airtight container, Do not keep in cool place.

Dose: 5-10 ml as antacid, 15-30ml as a laxative.

Auxiliary Labels: FOR EXTERNAL USE ONLY

Report:

Prepared and submitted 20ml of

Reference:

- C.V.S Subrahmanyam, Lab manual of Pharmaceutics, Vallabh Publications, Page no. 47-50.
- Dr. Dipak Kumbhar, Practical Book of Pharmaceutics –I, Global Education Limited, Page no. 39-41.

EMULSIONS

Latin term: Emulsio

An emulsion is defined as “biphasic/ heterogeneous liquid preparation containing two immiscible liquids one of which is dispersed as minute globules in another liquid”. The diameter of dispersed globules ranges from 0.1 to 100 μ (microns).

The liquid which is converted into minute globules is called dispersed phase and the liquid in which the globules are dispersed is called as continuous phase.

Types of emulsions

I. Simple type

A) Water in oil (W/O)

In these types of emulsion water is dispersed phase and an oil is a continuous phase. W/O types of emulsion generally meant for external use. Examples are butter, lotions, creams etc. In rare case they are used internally.

B) Oil in water (O/W)

In these types of emulsion, oil is dispersed phase and water is a continuous phase. O/W types of emulsion meant for both internal use & external use. Examples for internal use are vitamin A in corn oil, liquid paraffin in water etc. Examples for external use are benzyl benzoate emulsion

II. Depending on globule size

A) Micro emulsion

These are clear dispersions of O/W or W/O in which the globules have small size like as a 10 nm or 0.01 μ m. Being clear products micro emulsion are more popular now a days. Micro emulsions are thermodynamically stable optically transparent, mixtures of at biphasic oil-water system stabilized with surfactants.

B) Fine emulsion

Normally these have a milky appearance. The globule size ranges from 0.25 to 25 μ m.

III. Special type

A) Multiple emulsion (W/O/W, O/W/O)

These are emulsion within emulsion and designated as W/O/W or O/W/O. The drugs that are incorporated in the innermost phase must cross two phase boundaries before getting absorbed. It is generally used in oral sustained release or intramuscular therapy.

Advantages

- Unpleasant taste and odour can be masked.
- Emulsion provides protection against drugs which are prone to oxidation and hydrolysis.
- An emulsion improves absorption of oils when taken internally.
- Nowadays radio opaque emulsions are used as diagnostic agent in X-rays examination.

Disadvantages

- Thermodynamically unstable.
- Improper formulation may lead to creaming and cracking.
- Emulsions have short life.
- Preparation needs to be shaken well before use.

Applications

- Emulsion can be used to administer orally unpleasant tasting drugs.
- Bio availability of certain poorly soluble drugs can also be improved by dissolving them in an oil and emulsifying agents.
- Emulsion of both O/W and W/O types has extensively been used to prepare pharmaceutical preparation for external use and cosmetic preparation.
- Now day's emulsions are much more popular in food, nutraceutical and cosmetic industries.

Method of preparation

i. Dry gum method

General method of dispensing

1. Emulsifier (acacia) is mixed with oil before water addition.
2. The quantities of oil, water and gum for primary emulsion are calculated.
3. The acacia and the oil are placed in a dry porcelain mortar.
4. When the acacia is thoroughly distributed throughout the oil, water is added, all at once.
5. The mixture is triturated continuously but lightly in one direction until the mixture thickens under the pestle.
6. The primary emulsion is triturated for at least 5 minutes.
7. Finally, the emulsion is transferred to a graduated cylinder and brought to volume with water.
8. The emulsion should be Labeled "Shake well before use."

ii. Wet gum method

General method of dispensing

1. Emulsifier is added to water to form mucilage then oil is slowly added to an emulsion
2. The quantities of oil, water and gum for primary emulsion are calculated
3. Acacia and water are triturated to form mucilage in a porcelain mortar.
4. The oil is added in small amounts with constant, rapid and light trituration.
5. When all the oil has been added, the mixture is triturated vigorously for a few minutes.
6. Finally, the emulsion is transferred to graduated cylinder and brought to volume with water.
7. When two or more oily liquids are present, the quantity of acacia required for each is calculated, and the sum of these quantities is used for the emulsion. Alternatively each oil may be emulsified separately before mixing.

iii. Bottle Method

General method of dispensing

1. Measure the required quantity of oil and transfer into bottle
2. Add required quantity of gum acacia.
3. Shake the bottle vigorously, until oil and gum are thoroughly mixed.
4. Add the calculated amount of water.
5. Shake the bottle vigorously to form creamy primary emulsion.
6. Add remaining amount of water to produce required volume.

Formulations:

- Emulsifying agents e.g. Acacia, Gelatin, methyl cellulose.
- Preservatives eg. Benzoic acid.
- Anti-oxidants eg. Catechol.
- Flavouring Agents eg. Vanillin, chloroform water, benzaldehyde spirit.

Dispensing: Dispensed in narrow mouthed, plain/amber coloured glass bottle closed with metallic screw cap.

Label: Shake well before use, Store in a cool place.

Storage: Protected from light, freezing and excess heat. Store in a cool place.

Reference:

- Dr. Dipak Kumbhar, Practical Book of Pharmaceutics –I, Global Education Limited, Page no. 46-49.
- C.V.S Subrahmanyam, Lab manual of Pharmaceutics, Vallabh Publications, Page no. 96-98.

EXPT NO:

DATE:

LIQUID PARAFFIN EMULSION

Prescription no. 12

Date:/...../.....

Name:

Age:

Sex:

Address:

R

Liquid paraffin	30 ml
Gum Acacia	q.s
Purified water q.s	100ml

Prepare and send 20ml

Principle:

Liquid paraffin is a mineral oil, when taken orally it keeps the stool stop and therefore particularly used in the treatment of chronic constipation and in the presence of pain full conditions of the anus and rectum such as hemorrhoids and fistula. Since liquid paraffin is a mineral oil its primary emulsion ratio is 3: 2:1. Gum acacia is used as an emulsifying agent because emulsion prepared with gum acacia remains stable for sufficient long time.

Procedure: (Dry gum method)

Depending on the quantity of preparation to be submitted, calculate the primary working formula.

- Clean and dry all glasswares.
- Weigh the calculated quantity of liquid paraffin in dry a mortar.
- Add the weighed quantity of acacia to mortar and triturate thoroughly.
- To this add calculated quantity of water in small quantities with through trituration after each addition.
- Triturate without seizing until a clicking sound is produced until the product become white or nearly white.
- At this stage the emulsion is known as primary emulsion.
- Add some more vehicles in small quantities at a time with constant trituration so as to get a homogenous product.
- Transfer the emulsion to a measure, add more of vehicle to produce the final volume, and stir thoroughly so as to form a uniform emulsion.
- Transfer the preparation to a bottle, cap, polish, label and dispense

Category: : Laxative, Purgative

Direction: One table spoonful to be taken at bed time.

Storage: Store in an airtight container in a cool place

Auxiliary Labels: SHAKE WELL BEFORE USE

Report:

Prepared and submitted 20ml of

Reference:

- Beena Kumari, A practical book of Pharmaceutics, Pee Vee Publications, Page no. 70-71.
- Dr. Dipak Kumbhar, Practical Book of Pharmaceutics –I, Global Education Limited, Page no. 52-53.

EXPT NO:

DATE:

LIQUID PARAFFIN EMULSION IP

Prescription no. 13

Date:/...../.....

Name:

Age:

Sex:

Address:

R

Liquid paraffin	50ml
Chloroform	0.25 ml
Acacia	12.5 g
Tragacanth	0.5 g
Vanillin	0.05 ml
Sodium benzoate	0.5 g
Glycerin	12.5 ml
Purified water q.s	100ml

Prepare and send 20ml

Principle:

Liquid paraffin is a mineral oil, when taken orally it keeps the stool stop and therefore particularly used in the treatment of chronic constipation and in the presence of pain full conditions of the anus and rectum such as hemorrhoids and fistula. Since liquid paraffin is a mineral oil its primary emulsion ratio is 3: 2:1. Gum acacia is used as an emulsifying agent because emulsion prepared with gum acacia remains stable for sufficient long time. Tragacanth acts as secondary emulsifying agent, thickening agent and stabilizes the emulsion. Sodium benzoate acts as the preservative for the aqueous phase. Vanillin is the flavoring agent. Glycerin is added to increase the viscosity of the preparation. Chloroform is used as the preservative for the oily phase. It prevents the surface growth of microorganisms as the high vapor pressure of chloroform allows it to concentrate on the surface of the emulsion. It also fills the empty spaces inside the bottle thus preventing the growth of microorganisms.

Procedure: (Wet gum method)

Depending on the quantity of preparation to be submitted, calculate the primary working formula.

- Clean and dry all glasswares.
- Weigh the calculated quantity of acacia and place in a mortar.
- Add the measured quantity of water to mortar and triturate it with gum so as to form mucilage.
- To this add calculated quantity of liquid paraffin in small quantities with through trituration after each addition.
- Triturate without seizing until a clicking sound is produced until the product become white or nearly white.

- At this stage the emulsion is known as primary emulsion.
- Add some more vehicles in small quantities at a time with constant trituration so as to get a homogenous product.
- Mix all other ingredients in small quantity of water and add to the mortar with trituration.
- Transfer the emulsion to a measure, add more of vehicle to produce the final volume, and stir thoroughly so as to form a uniform emulsion.
- Transfer the preparation to a bottle, cap, polish, label and dispense

Category: : Laxative.

Direction: One table spoonful to be taken at bed time.

Storage: Store in an airtight container in a cool place

Auxiliary Labels: SHAKE WELL BEFORE USE

Report:

Prepared and submitted 20ml of

Reference:

- Beena Kumari, A practical book of Pharmaceutics, Pee Vee Publications, Page no. 70-71.
- Dr. Dipak Kumbhar, Practical Book of Pharmaceutics –I, Global Education Limited, Page no. 52-53.

EXPT NO:

DATE:

CASTOR OIL EMULSION

Prescription no. 14

Date:/...../.....

Name:

Age:

Sex:

Address:

R

Castor oil	37.5 ml
Gum Acacia	q.s
Cinnamon water q.s	100ml

Prepare and send 20ml

Principle:

Castor oil emulsion is used as a laxative, to empty the GI tract, while the patient is prepared for the colon X-ray, proctoscopy, and endoscopic examination. Castor oil is best taken on an empty stomach, followed with one full glass of water. On oral administration, castor oil emulsion produces one or more copious stools within 2 to 6 hr after ingestion. The purgative action is due to ricinoleic acid that is produced on the hydrolysis of ricinolein (present in castor oil) in the intestine. Ricinoleic acid stimulates water secretion in the intestine while decreasing glucose absorption. Chronic use of castor oil emulsion is not recommended, since absorption of nutrients may be reduced.

The amount of castor oil in commercial castor oil emulsions varies from about 35 to 67%. The amount of oil present influences the dose of the emulsion required. Castor oil is obtained from the seeds of *Ricinus communis* (Euphorbiaceae). Castor oil possesses bland taste at first, but afterwards slightly acrid. Hence it cannot be taken orally as it is. It is supplied in the form of emulsion using acacia as an emulsifying agent.

Castor oil is a fixed oil. Therefore, primary emulsion formula is oil water acacia 4:2:1. The emulsion is prepared by wet gum method and emulsion formed will be one type in which castor oil is a dispersed phase and cinnamon water is a continuous phase.

Precautions for administration: Castor oil, and other laxatives, should not be used regularly or excessively as they can lead to dependence for bowel movement. Laxatives should not be used when nausea, vomiting, or abdominal pain is present since these symptoms may indicate appendicitis. Use of a laxative in this instance could promote rupturing of the appendix. Castor oil emulsion should not be given in the therapy of acute constipation.

Procedure: (Wet gum method)

Depending on the quantity of preparation to be submitted, calculate the primary working formula.

- Clean and dry all glasswares.
- Weighed quantity of acacia is placed in a mortar.

- Measured quantity of cinnamon water at once (calculated for primary emulsion formula) is added into the mortar.
- The contents in the mortar are triturated to form mucilage.
- Measured quantity of castor oil is added in small quantities, with constant, rapid, and light trituration to produce a thick cream. Trituration is continued for three minutes, to obtain a white, stable emulsion. It is indicated by click sound.
- Some more quantity of cinnamon water is added gradually, with continuous trituration.
- The contents are transferred into a measuring cylinder.
- The pestle and mortar are rinsed with cinnamon water and rinsings are transferred into the measuring cylinder.
- The quantity is adjusted to the required volume using cinnamon water and the contents are stirred well.
- The castor oil emulsion is then transferred into a wide mouthed light resistant container.
- The bottle is capped, labelled, polished, and submitted.

Category: : Laxative.

Direction: Take on an empty stomach, followed with one full glass of water.

Dose : 4-16ml

Storage: Store in an airtight container in a cool place

Auxiliary Labels: SHAKE WELL BEFORE USE

Report:

Prepared and submitted 20ml of

Reference:

- C.V.S Subrahmanyam, Lab manual of Pharmaceutics, Vallabh Publications, Page no. 96-98.
- Dr. Dipak Kumbhar, Practical Book of Pharmaceutics –I, Global Education Limited, Page no. 52-53.