TECHNOCRATS

Lab Work Book of

Pharmaceutics - I

(BP -109 P)

Department of Pharmacy

Lab Manual of

Pharmaceutics - I

(BP - 109 P)

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TECHNOCRATS
PUBLICATIONS

Lab Work Book
of

Pharmaceutics - I

(BP - 109 P)

(Strictly According to RGPV Syllabus)

Name : .....

Enrollment No. : .....

Institute : .....

Academic Session : .....

Department of Pharmacy

TECHNOCRATS
PUBLICATIONS

Vision of the Institute

To grow as an institute of Excellence for Pharmacy Education and Research and to serve the humanity by sowing the seeds of intellectual, cultural, ethical, and humane sensitivities in the students to develop a scientific temper, and to promote professional and technological expertise.

Mission of the Institute

M 1: To inculcate ethical, moral, cultural and professional values in students

M 2: To provide state of art infrastructure facilities to the staff and students so as to enable them to learn latest technological advancements

M 3: State of art learning of professionalism by the faculty and students

M 4: To produce well learned, devoted and proficient pharmacists

M 5: To make the students competent to meet the professional challenges of future

M 6: To develop entrepreneurship qualities and abilities in the students

PROGRAM OUTCOMES (POs)

1. **Pharmacy Knowledge:** Possess knowledge and comprehension of the core and basic knowledge associated with the profession of pharmacy, including biomedical sciences; pharmaceutical sciences; behavioral, social, and administrative pharmacy sciences; and manufacturing practices.
2. **Planning Abilities:** Demonstrate effective planning abilities including time management, resource management, delegation skills and organizational skills. Develop and implement plans and organize work to meet deadlines.
3. **Problem analysis:** Utilize the principles of scientific enquiry, thinking analytically, clearly and critically, while solving problems and making decisions during daily practice. Find, analyze, evaluate and apply information systematically and shall make defensible decisions.
4. **Modern tool usage:** Learn, select, and apply appropriate methods and procedures, resources, and modern pharmacy-related computing tools with an understanding of thelimitations.
5. **Leadership skills:** Understand and consider the human reaction to change, motivationissues, leadership and team-building when planning changes required for fulfillment of practice, professional and societal responsibilities. Assume participatory roles as responsible citizens or leadership roles when appropriate to facilitate improvement in health and well- being.
6. **Professional Identity:** Understand, analyze and communicate the value of their professional roles in society (e.g. health care professionals, promoters of health, educators, managers, employers, employees).
7. **Pharmaceutical Ethics:** Honour personal values and apply ethical principles in professional and social contexts. Demonstrate behavior that recognizes cultural and personal variability in values, communication and lifestyles. Use ethical frameworks; apply ethical principles while making decisions and take responsibility for the outcomes associated with the decisions.
8. **Communication:** Communicate effectively with the pharmacy community and with society at large, such as, being able to comprehend and write effective reports, make effective presentations and documentation, and give and receive clear instructions.
9. **The Pharmacist and society:** Apply reasoning informed by the contextual knowledge to assess societal, health, safety and legal issues and the consequent responsibilities relevant to the professional pharmacy practice.
10. **Environment and sustainability:** Understand the impact of the professional pharmacy solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.
11. **Life-long learning:** Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. Self-assess and use feedback effectively from others to identify learning needs and to satisfy these needs on an ongoing basis.

PEOs

PEO 1: To inculcate quality pharmacy education and training through innovative Teaching Learning Process.

PEO 2: To promote professionalism, team spirit, social and ethical commitment with effective interpersonal communication skills to boost leadership role assisting improvement in healthcare sector.

PEO 3: To enhance Industry-Institute-Interaction for industry oriented education and research, which will overcome healthcare problems of the society.

PEO 4: To adapt and implement best practices in the profession by enrichment of knowledge and skills in research and critical thinking

PEO 5: To generate potential knowledge pools with interpersonal and collaborative skills to identify, assess and formulate problems and execute the solution in closely related pharmaceutical industries and to nurture striving desire in students for higher education and career growth.

Course Outcomes (COs):

Student will be able to:

- CO1: Demonstrating and practice preparation and dispensing of various dosage forms the dosage forms.
- CO2: Identify the incompatibilities in dispensing a pharmaceutical dosage form.
- CO3: Evaluate the prescription and estimate the accurate dose using various calculations.
- CO4: Demonstrating and practice preparation and dispensing of various dosage forms the semisolid dosage form.
- CO5: Demonstrating and practice preparation and dispensing of various dosage forms the Mouthwashes.

Index

Experiment No. 1

OBJECT:

To prepare and submit Simple Syrup IP.

REFERENCES:

1. L. Lachman, H. A. Lieberman and J.L. Kanig, The Theory and Practice of Industrial Pharmacy, 4th edition, 1991, Varghese Publishing House, Bombay

2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY

Syrups are sweet, viscous, concentrated aqueous solutions of sucrose or other sugars. Medicated syrups contain a therapeutic or medicinal agent. They offer a pleasant means of administering disagreeable tasting drugs. Sucrose is commonly used in the preparation of syrups but other sugars can also be used like dextrose, sorbitol, glycerin and propylene glycol. Concentration of sucrose in sugar based syrup is important. A dilute solution of sucrose supports the growth of microorganisms whereas a saturated solution may lead to crystallization of a part of sucrose under condition of varying temperature. In simple syrup sucrose at the concentration of 85% is dissolved in water. These are sometimes used as a coating on to the surface of the tablets. If some therapeutic agent is present, then it is called as medicated syrup. Some syrups does not contain therapeutic agent, instead they consists of flavouring agents. These are called flavoured syrups and are generally used as vehicles. For the preparation of extemporaneous products, flavoured syrups are used as the vehicles. Flavoured syrups are made by infusing simple syrups with flavouring agents during the cooking process. A wide variety of flavouring agents can be used, often in combination with each other, such as herbs (rosemary), spices (chipotle chilis, cardamom), or aromatics (orange peel, lemongrass, ginger). For instance, syrups aromatics is prepared by adding certain quantities of orange flavouring and cinnamon water to simple syrup.

Syrup IP is a 66.7% w/w solution of sucrose in purified water and Syrup USP consists of 85% w/v (corresponding to 64.74%w/w) solution of sucrose in purified water. Both the concentration give stable syrups resistant to microbial growth. Method of preparation includes hot process, percolation (cold process), addition of medicating or flavorings liquid to syrup and agitation without heat.

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Sucrose	667gm	
Purified water	100gm	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Sucrose was added in half the quantity of water and allowed to heat to dissolve it with continuous stirring.
4. Solution was allowed to cool and more purified water was added to make up the required weight.
5. Prepared formulation was packed in suitable container, labeled and submitted.

Use: It is used as additive in various formulations

Storage: Store in well closed container in a cool and dry place.

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What do you mean by simple syrup?

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Q.2 What quantity of sucrose is added and why?

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Q.3 Name the sugars that can be added apart from sucrose.

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Q.4 What is the difference in syrup IP and syrup USP?

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Q.5 What are medicated syrups?

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Experiment No. 2

OBJECT:

Prepare and submit Ferrous Phosphate Syrup I.P.

REFERENCES:

1. Laboratory manual of pharmaceutics by C.V.S. Subramanyam, J Thimmo shetty, G.l. Prabhushankar first edition published by vallabh publication New Delhi

2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

Syrups are sweet, viscous, concentrated aqueous solutions of sucrose or other sugars. Medicated syrups contain a therapeutic or medicinal agent. They offer a pleasant means of administering disagreeable tasting drugs. Sucrose is commonly used in the preparation of syrups but other sugars can also be used like dextrose, sorbitol, glycerin and propylene glycol. Concentration of sucrose in sugar based syrup is important. A dilute solution of sucrose supports the growth of microorganisms whereas a saturated solution may lead to crystallization of a part of sucrose under condition of varying temperature. In simple syrup sucrose at the concentration of 85% is dissolved in water.

Syrup IP is a 66.7% w/w solution of sucrose in purified water and Syrup USP consists of 85% w/v (corresponding to 64.74%w/w) solution of sucrose in purified water. Both the concentration give stable syrups resistant to microbial growth. Method of preparation includes hot process, percolation (cold process), addition of medicating or flavorings liquid to syrup and agitation without heat.

Ferrous Phosphate Syrup is a preparation containing iron along with electrolytes, calcium, potassium and sodium. these electrolytes overcome the deficiency, which is most common in anaemic condition.

Iron supplements are used to treat iron deficiency and iron-deficiency anemia, where requirements for iron are greater than the body's ability to supply iron such as in inflammatory states.

Since iron is essentially supplied orally, syrup is used as a major ingredient in this preparation. It acts as sweetening agent.

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Iron fehlings	4.3 gm	
Phosphoric acid	80 ml	
Calcium carbonate	13.6 gm	
Potassium bicarbonate	1.0 gm	
Sodium phosphate	1.0gm	
Cochineal	3.5 gm	
Sucrose	700 gm	
Orange flower water	50 ml	
Purified water qs	1000 ml	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Preparation of Medicinal Contents

- Phosphoric acid is diluted with water and divided into two portions
- To one portion of diluted phosphoric acid, iron is added and heated on water bath until iron dissolves
- Calcium carbonate, potassium bicarbonate and sodium phosphate are dissolved in second portion of diluted phosphoric acid in a beaker by stirring(carbon dioxide is allowed to evolve)
- Both the solutions were dissolved and filtered to remove the impurities (iron carbide and carbon)

4. **Preparation of Vehicle**

- Coloring agent is extracted from cochineal by boiling it for 15 mins with water
- Sugar is added to the above colored decoction, and heating is continued until sugar completely dissolves
- The hot syrup containing coloring agent is cooled, strained, washed with water to produce a specified volume

5. Mixing of Both the Parts

- The colored syrup is mixed with mixture containing medicaments
- To the above mixture, orange flower water is added and the final volume is adjusted with water

9. The preparation was then transferred to light resistant container.

10. Container was labeled and submitted.

Use: Supplement of iron, sodium, calcium and phosphate

Dose: 2 to 8 ml

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q-1. What is medicated syrup?

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Q-2. Why syrups IP do not require preservatives?

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Q-3. List the ingredients used in ferrous phosphate syrup and its therapeutic effect.

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Q-4. Give advantages of syrup.

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Q-5. What is the strength of sucrose in simple syrup?

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Experiment No. 3

OBJECT:

Prepare and submit Piperazine Citrate Elixir

REFERENCES:

1. Laboratory manual of pharmaceutics by C.V.S. Subramanyam, J Thimmo shetty, G.l. Prabhushankar first edition published by vallabh publication New Delhi

2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

Elixirs are clear, sweetened, aromatic, hydro alcoholic liquid preparations intended for oral use. They provide a palatable means of administering potent or nauseous drugs. Elixirs are less sweet and less viscous than syrups and may contain less or no sucrose, whereas elixirs are more stable. Elixirs contain ethyl alcohol and suitable colorings and flavoring agent. Preservatives are not required as their alcohol content is sufficient to render them as self-preserving. They may also contain glycerin and syrup either for increasing the solubility of medicament or for sweetening purpose. These are stable preparation when packed in airtight, light resistant containers and if these are not diluted or mixed with other preparations.

Piperazine Citrate Elixir is used as anthelmintics, these are group of anti-parasitic drugs that expel parasitic worms and other internal parasites from the body by either stunning or killing them and without causing significant damage to the host.

Glycerin acts as co-solvents to enhance the solubility of the drug. Chloroform spirit acts as preservative. Orange oil acts as flavoring agents.

Piperazine citrate possesses unpleasant taste, so simple syrup is used to mask the taste of the drug. Piperazine Citrate Elixir is an oral solution containing 18.75% w/v of Piperazine Citrate in a suitable flavoured vehicle.

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Piperazine citrate	18 gm	
Chloroform spirit	0.50 ml	
Glycerin	10 ml	
Orange oil	0.025 ml	
Syrup	50 ml	
Purified water qs	100 ml	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Piperazine citrate was dissolved in small quantity of water.
4. To the solution, required quantity of orange oil, chloroform spirit, glycerin and syrup were added gradually with constant stirring.
5. To the prepared solution purified water was added to make up the required volume.
6. Prepared formulation was packed in suitable container, labeled and submitted.
7. The preparation was then transferred to light resistant container. Container was labeled and submitted.

Use : Anthelmintic

Dose : 4 to 15 ml

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What are anthelmintics ?

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Q.2. Why glycerine is used?

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Q.3 What is the difference in syrup and elixir ?

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Q.4 Write the name of any two official elixirs ?

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Q.5 What is chloroform spirit? Why is it used in this formulation ?

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Experiment No. 4

OBJECT:

Prepare and submit Paracetamol Pediatric Elixir

REFERENCES:

1. Laboratory manual of pharmaceutics by C.V.S. Subramanyam, J Thimmo shetty, G.l. Prabhushankar first edition published by vallabh publication New Delhi

2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

Elixirs are clear, sweetened, aromatic, hydro alcoholic liquid preparations intended for oral use. They provide a palatable means of administering potent or nauseous drugs. Elixirs are less sweet and less viscous than syrups and may contain less or no sucrose, whereas elixirs are more stable. Elixirs contain ethyl alcohol and suitable colorings and flavoring agent. Preservatives are not required as their alcohol content is sufficient to render them as self-preserving. They may also contain glycerin and syrup either for increasing the solubility of medicament or for sweetening purpose. These are stable preparation when packed in airtight, light resistant containers and if these are not diluted or mixed with other preparations.

Glycerin acts as co-solvents to enhance the solubility of the drug. Chloroform spirit acts as preservative. Concentrated raspberry juice acts as flavoring agents.

Pediatric paracetamol elixir improves the patient's condition by increasing the pain threshold and increases the blood flow across the skin, heat loss and sweating. Headache and toothache are among the most common reported uses for pediatric paracetamol elixir.

Pediatric paracetamol elixir (paracetamol elixir) contains paracetamol to relieve pain and reduce high temperatures. Paracetamol elixir can be used in babies and children for the treatment of mild or moderate pain and feverishness, and also in babies who develop fever after vaccination.

Before giving paracetamol elixir to child do not give paracetamol elixir if the child is taking any other paracetamol containing products, other flu, cold, cough or decongestant products, or alcohol. Do not give paracetamol elixir to child if he/she is allergic (hypersensitive) to paracetamol, or any of the other ingredients of paracetamol elixir or if child has kidney or liver

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Paracetamol	24 gm	
Amaranth solution	2 ml	
Chloroform spirit	20 ml	
Conc raspberry juice	25 ml	
Alcohol 95%	100 ml	
Propylene glycol	100 ml	
Invert syrup	275 ml	
Glycerin	1000 ml	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Alcohol, propylene glycol, chloroform spirit and Conc raspberry juice were added
4. Paracetamol was taken into beaker and the above mixture was added slowly to dissolve paracetamol completel
5. To above mixture, invert sugar was added.
6. Amaranth solution was added and glycerin was added to make up the required volume
7. Solution was filtered if necessary
8. The preparation was then transferred to light resistant container.
9. Container was labeled and submitted.

Use: analgesic and antipyretic for children
Dose: 5 to10 ml
Storage: Store in well closed container in a cool place.

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What do you mean by pediatric?

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Q.2 In what conditions this preparation should not be used?

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Q.3 What is drug category of paracetamol?

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Q.4 What are the advantages of elixirs over other dosage forms?

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Q.5 What do you mean by invert sugar?

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Experiment No. 5

OBJECT:

Prepare and submit Strong Solution of Ammonium Acetate

REFERENCES:

1. Laboratory manual of pharmaceutics by C.V.S. Subramanyam, J Thimmo shetty, G.l. Prabhushankar first edition published by vallabh publication New Delhi
2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

A solution is a homogeneous mixture composed of two or more substances. In such a mixture, a solute is dissolved in another substance, known as a solvent. A common example is a solid, such as salt or sugar, dissolved in water, a gases may dissolve in liquids, for example, carbon dioxide or oxygen in water. Liquids may dissolve in other liquids. Gases can combine with other gases to form mixtures, rather than solutions. All solutions are characterized by interactions between the solvent phase and solute molecules or ions that result in a net decrease in free energy. Under such a definition, gases typically cannot function as solvents, since in the gas phase interactions between molecules are minimal due to the large distances between the molecules. This lack of interaction is the reason gases can expand freely and the presence of these interactions is the reason liquids do not expand. Solutions should be distinguished from non-homogeneous mixtures such as colloids and suspension.

Solutions are liquid preparations containing one or more chemical substances usually dissolved in water. Solutions are used for specific therapeutic effect of solute either internally or externally. It contains 57.5% w/v of ammonium acetate. In this preparation two alkaline substances (ammonium bicarbonate and ammonia solution strong) are used because it is not possible to prepare the solution by reacting glacial acetic acid with ammonium bicarbonate alone because at certain point the reaction between these two substance ceases and the desired product is not produced so ammonia solution strong is used to complete neutralization of the acid and to make the preparation alkaline having pH between 7.6 to 8.1. As the salt of a weak acid and a weak base, ammonium acetate is often used with acetic acid to create a buffer solution.

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Glacial acetic acid	453 gm	
Ammonium bicarbonate	470 gm	
Ammonia solution strong	100 ml	
Purified water q.s.	1000 ml	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Glacial acetic acid was mixed with about 350ml of purified water, to this ammonium bicarbonate was added in small quantities with continuous stirring until completely dissolved.
4. Then small quantity of ammonia solution was added until one drop of the resulting solution diluted with 10 drops of water, gives full blue color with 1 drop of bromothymol blue solution and a full yellow color with one drop of thymol blue solution.
5. Then sufficient amount of purified water was added to produce required volume.
6. Prepared formulation was packed in suitable container, labeled and submitted.

Use: It is diaphoretic, which are used to lower the raised body temperature by increasing the excretion of body fluids in the form of sweat and urine

Dose: 1 to 4 ml

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What are diaphoretic ?

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Q.2 What do you mean by sparingly soluble?

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Q.3 What is the solubility of ammonia in water?

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Q.4 Why ammonium bicarbonate is used in this preparation ?

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Q.5 What is the use of Strong Solution of Ammonium Acetate

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Experiment No. 6

OBJECT:

Prepare and submit Cresol with Soap Solution IP.

REFERENCES:

1. Laboratory manual of pharmaceutics by C.V.S. Subramanyam, J Thimmo shetty, G.l. Prabhushankar first edition published by vallabh publication New Delhi

2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

Cresol is soluble in water to the extent of 2%v/v. But Lysol(cresol with soap) containing 50% v/v of cresol is very effective disinfectant. It kills microorganisms, as it possesses bactericidal and detergent properties. Solubility of cresol in water can be enhanced using soap.

It acts by disruption of cell membranes and denaturation of proteins and enzymes of the cell. It is effective against vegetative gram positive and gram negative bacteria, mycobacterium and viruses.

Soaps are surfactants, which form micelles above critical micelle concentration. At this stage cresol gets selectively entrapped inside spherical micelles. Thus, solubility of cresol is increased. The soap is prepared by a saponification reaction between alkali and vegetable oils (or fatty acids). The vegetable oil may be cottonseed, linseed, soyabean or similar oils(excluding coconut and palm kernel oils). The alkali is potassium hydroxide solution. Alternatively sodium hydroxide solution may be used.

Test to check completion of saponification reaction is to add few drops of water to the reaction mixture, if it remains completely miscible means the reaction is completed and if the mixture remains immiscible, it shows reactions is incomplete and heating should be continued for completion of saponification reaction.

Cresol with soap solution cannot be used on human beings (as an antiseptic) because of its necrotic action to animal tissues. Even 5 to 10% aqueous solution of cresol irritate the skin of many people.

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Cresol	500 ml	
Vegetable oil	180 gm	
Potassium hydroxide	42 gm	
Purified water	1000 ml	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Potassium hydroxide is dissolved in small quantity of purified water.
4. Vegetable oil is added to the above alkali solution.
5. The above mixture is heated on water bath with continuous mixing
6. The solution was heated continuously until the completion of saponification reaction.
7. Cresol was added and mixed thoroughly
8. Sufficient water was added to produce the required volume.
9. The preparation was then transferred to light resistant container.
10. Container was labeled and submitted.

Use: Disinfectant

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What is Cresol?

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Q.2 Which vegetable oils should be used ?

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Q.3 What is the use of potassium hydroxide ?

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Q.4 What is the concentration of Cresol present in Lysol ?

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Q.5 What are the test applied for confirmation of saponification reaction ?

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Experiment No. 7

OBJECT:

Prepare and submit Calamine Lotion

REFERENCES:

1. Laboratory manual of pharmaceutics by C.V.S. Subramanyam, J Thimmo shetty, G.l. Prabhushankar first edition published by vallabh publication New Delhi

2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

A pharmaceutical suspension is a type of disperse system in which one substance, the insoluble solid (the disperse phase) is distributed throughout a vehicle (the continuous phase) along with other additives in the formulation (suspending agent, preservative, buffering system , coloring agent , flavoring agent and sweating agent**).**

Calamine is colored zinc carbonate (pink color) is practically insoluble in water, as zinc oxide. Both are astringents and indiffusible solids. Bentonite is the suspending agent used as thickening agent. Sodium citrate is added to control flocculation of calamine, by causing partial deflocculation of calamine, in its absence the suspension is much thicker and very difficult to pour from the bottle.Glycerin is used to l thicken the product and help powder adherence to the skin. Liquefied phenol acts as a preservative and antiseptic.

Pharmaceutical suspensions are prepared for oral, external, parental, ophthalmic and inhalation use.

Calamine lotion is a suspension used externally as cooling, anti pruritic preparation in case of sun burns, smallpox.

The color of calamine lotion is pink.The most important auxiliary label is “for external use”,” shake well before use” don’t apply to broken skin the shelf life is one month. The storage condition is “ store in cool not below 4C and dry place”.

The lotion should be applied to the affected areas when required and allowed to dry.

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Calamine	150 gm	
zinc oxide	50 gm	
Bentonite	30 gm	
Sodium citrate	5 gm	
Liquefied phenol	5 ml	
Glycerin	50 ml	
Rose water, q.s	1000 ml	

CALCULATION:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Weigh and mix the calamine, zinc oxide and bentonite in a mortar so that the bentonite is well distributed.
4. Dissolve sodium citrate in 700 ml rosewater, and gradually add to the mixture in the mortar, so that a smooth paste is produced
5. Add the liquefied phenol and glycerin and mix well
6. Add sufficient rose water to produce the required volume.
7. The preparation was then transferred to light resistant container.
8. Container was labeled and submitted.

Use: Calamine lotion is a suspension used externally as cooling, anti pruritic preparation in case of sun burns, itching and skin irritation etc

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 Define lotion

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Q.2 Give uses of calamine lotion?

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Q.3 What is the use of zinc oxide?

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Q.4 Why bentonite is added?

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Q.5 Why glycerin is added?

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Experiment No. 8

OBJECT:

Prepare and submit Turpentine Liniment

REFERENCES:

1. Laboratory manual of pharmaceutics by C.V.S. Subramanyam, J Thimmo shetty, G.l. Prabhushankar first edition published by vallabh publication New Delhi
2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

Liniment (liquid or ointment) - dosage form for external use, is a fat liquid or gelatinous mass, which melt at body temperature. Wide application of liniment in medical practice due to their advantages: Medicinal substances of the liniment are well absorbed by the skin, and have high bioavailability and Compared with ointments liniments better applied to the skin, leaving fewer traces on skin and clothing of the patient. Liniment is prepared by the general rules of preparation of liquid dosage forms.

Turpentine Liniment is used as counter irritant and rubefacient. Camphor is soluble in turpentine oil but not in water. Turpentine oil is immiscible in water. therefore oil in water emulsion is formed using soft soap as emulsifying agent.

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Soft soap	90 gm	
Camphor	50 gm	
Turpentine oil	650 ml	
Purified water	1000 ml	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Soft soap is weighed and transferred to a mortar and gradually mixed with small quantity of distilled water with constant trituration to get a cream-like consistency
4. Camphor was dissolved in turpentine oil by continuous stirring.
5. Camphorated turpentine oil is added in drops to the mortar with thorough trituration till whole of camphorated turpentine oil is added.
6. The contents are transferred to a measuring cylinder and the required volume is made up by adding subsequent washings of a mortar and pestle with distilled water.
7. The liniment is thoroughly mixed.
8. The preparation was then transferred to light resistant container.
9. Container was labeled and submitted.

Use: Counter Irritant, Rubefacient

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 Define liniments.

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Q.2 What is the use of soft soap?

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Q.3 What is the use of turpentine liniment?

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Q.4 Which type of emulsion is formed?

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Q.5 Define solubility of camphor.

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Experiment No. 9

OBJECT:

Prepare and submit Liquid Paraffin Emulsion

REFERENCES:

1. Laboratory manual of pharmaceutics by C.V.S. Subramanyam, J Thimmo shetty, G.l. Prabhushankar first edition published by vallabh publication New Delhi

2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

An emulsion is essentially a liquid preparation containing a mixture of oil and water that is rendered homogeneous by the addition of an emulsifying agent. The emulsifying agent ensures that the oil phase is finely dispersed throughout the water as minute globules. This type of emulsion is termed an 'oil in water' emulsion. The oily phase (disperse phase) is dispersed through the aqueous phase (continuous phase). Generally all oral dose emulsions tend to be oil-in-water as the oily phase is usually less pleasant to take and more difficult to flavour. 'Water-in-oil' emulsions can be formed but these tend to be those with external uses.

The pharmaceutical term 'emulsion' is solely used to describe preparations intended for internal use, i.e. via the oral route of administration. Emulsion formulations for external use are always given a different title that reflects their use, e.g. application, lotion and cream Oral emulsions are oral liquids containing one or more active ingredients. They are stabilized oil-in-water dispersions, either or both phases of which may contain dissolved solids. Solids may also be suspended in oral emulsions. When issued for use, oral emulsions should be supplied in wide-mouthed bottles.

Advantages of emulsions as dosage forms

- Unpalatable oils can be administered in palatable form.
- Unpalatable oil-soluble drugs can be administered in palatable form.
- The aqueous phase is easily flavored.
- The oily sensation is easily removed.
- The rate of absorption is increased.
- It is possible to include two incompatible ingredients, one in each phase of the emulsion.

Disadvantages of emulsions as dosage forms

- Preparation needs to be shaken well before use.
- A measuring device is needed for administration.
- A degree of technical accuracy is needed to measure a dose.
- Storage conditions may affect stability.
- Bulky, difficult to transport and prone to container breakages.
- Liable to microbial contamination which can lead to cracking.

Stability of emulsions

Emulsions can break down in the following ways:

- cracking
- creaming
- phase inversion.

Liquid paraffin is a mineral oil obtained from petroleum. it gets emulsified in the GI tract and holds water. So the faecal matter do not become dry.

Castor oil is a fixed oil obtained from castor seeds of *Ricinus Communis*. it produces the purgative effect

Liquid paraffin is a type of medicine called a laxative. It works by softening and lubricating the stools. This helps the stools to move more easily through the bowel. This medicine relieves constipation, making stools easier to pass.

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Liquid paraffin	10 ml	
Castor oil	10 ml	
Simple syrup	30 ml	
Water qs	100 ml	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Castor oil and liquid paraffin are transferred into dry mortar, and triturate well.
4. Acacia is placed on the oil, triturated gently
5. When the gum is dispersed, water is added with rapid trituration.
6. Measured volume of syrup is diluted with water. This is gradually added to mortar with continuous trituration.
7. The content was transferred to measuring cylinder
8. Finally the volume was made up to the required level with water.
9. The preparation was then transferred to light resistant container.
10. Container was labeled and submitted.

Use: Laxative

Storage: Store in well closed container in a cool place. With a label “Shaken well before Use”

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What is emulsion?

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Q.2 What is the use of castor oil?

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Q.3 What is the role of emulsifying agent?

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Q.4 Prepare the label?

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Q.5 What are the advantages of emulsion?

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Experiment No. 10

OBJECT:

Prepare and submit Eutectic Powder

REFERENCES:

1. Laboratory manual of pharmaceutics by C.V.S. Subramanyam, J Thimmo shetty, G.l. Prabhushankar first edition published by vallabh publication New Delhi

2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

A eutectic mixture is defined as a mixture of two or more components which usually do not interact to form a new chemical compound but, which at certain ratios, inhibit the crystallization process of one another resulting in a system having a lower melting point than either of the components. A eutectic system describes a homogeneous solid mix of atomic and/or chemical species, to form a joint super-lattice, by striking a unique atomic percentage ratio between the components as each pure component has its own distinct bulk lattice arrangement. It is only in this atomic/molecular ratio that the eutectic system melts as a whole, at a specific temperature (the eutectic temperature) the super-lattice releasing at once all its components into a liquid mixture. The eutectic temperature is the lowest possible melting temperature over all of the mixing ratios for the involved component species.

A eutectic mixture is defined as a mixture of two or more components which usually do not interact to form a new chemical compound but, which at certain ratios, inhibit the crystallization process of one another resulting in a system having a lower melting point than either of the components. Eutectic mixtures, can be formed between Active Pharmaceutical Ingredients (APIs), between APIs and excipient or between excipient; thereby providing a vast scope for its applications in pharmaceutical industry. Eutectic mixture formation is usually, governed by following factors: (a) the components must be miscible in liquid state and mostly immiscible in solid state (b) Intimate contact between eutectic forming materials is necessary for contact induced melting point depression, (c) the components should have chemical groups that can interact to form physical bonds such has intermolecular hydrogen bonding etc., (d) the molecules which are in accordance to modified VantHoff's equation can form eutectic mixtures

During pre formulation stage, compatibility studies between APIs and excipient play a crucial role in excipient selection. Testing for eutectic mixture formation can help in anticipation of probable physical incompatibility between drug and excipient molecules. Eutectic mixtures are commonly used in drug designing and delivery processes for various routes of administration. During manufacturing of pharmaceutical dosage form, it is extremely necessary to anticipate the formation of eutectics and avoid manufacturing problems if any. For example, during tablet compaction the heat produced in the punch and die cavities may lead to fusion or melting of tablet powder compacts leading to manufacturing defects. Thus knowledge of eutectic points of powder components may help avoid these problems.

During pharmaceutical analysis, understanding of eutectic mixtures can help in the identification of compounds having similar melting points. Compounds having similar melting points, as a rule will have different eutectic point with a common other component. This knowledge could be used to identify compounds like Ergotamine, Allobarbital etc.. The listed drugs can be distinguished by their tendency to form eutectic mixtures with Benzanilide.

FORMULA:

Ingredients	Quantity Prescribed	Quantity Taken
Menthol	5.0 gm	5.0 gm
Camphor	5.0gm	5.0gm
Ammonium chloride	30gm	30gm
Light magnesium carbonate	60gm	60gm

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried.
2. Required quantity of chemicals were taken and weighed.
3. Menthol and camphor was mixed in mortar and pestle and form a liquid.
4. Aluminum chloride was mixed slowly in liquid.
5. The light magnesium carbonate was added to above solution and makes them free floating powder.
6. The powder was passed through sieve no.:85.
7. The preparation was then transferred to light resistant container or packed in paper
8. packets.
9. Container/packets were labeled and submitted.

Use: Carminative
Label: Disperse one packet of powder in glass of water and drink
Storage: Store in well closed container in a cool place.

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What is eutectic powder?

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Q.2 Give the use of this preparation?

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Q.3 What is the meaning of liquefiable substance?

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Q.4 What is the importance of melting point?

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Q.5 How are they administered?

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Experiment No. 11

OBJECT:

To prepare and submit Boric Acid Suppositories.

REFERENCES

1. L. Lachman, H. A. Lieberman and J.L. Kanig, The Theory and Practice of Industrial Pharmacy, 4th edition, 1991, Varghese Publishing House, Bombay

2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY:

Boric acid is a weak, topical, bacteriostatic, and fungistatic agent; however, the exact mechanism of action is unclear.4 It has been suggested that the fungistatic activity may be mediated by vaginal acidification, resulting in fungal cell wall penetration and disruption of the fungal cell membrane.5 Conversely, studies evaluating the minimum inhibitory concentration of boric acid indicate that boric acid works at a pH similar to that of the untreated vaginal tract, and, therefore, the action may not be simply due to an increase in acidity.

Boric acid vaginal suppositories should not be considered for the first-line treatment of uncomplicated vulvovaginal candidiasis because of insufficient efficacy data and controversies surrounding its safety. Safety and efficacy of the azoles are welldocumented. Boric acid may be considered as an alternative in azole-resistant monilial strains or refractory cases of chronic, recurrent vulvovaginal candidiasis. Boric acid should not be used in pregnant women due the risk of teratogenic effects and the lack of data demonstrating safety, data is available regarding the safety of boric acid in lactating mothers; therefore, it should not be recommended in this patient population.

Boric acid should not be considered first-line treatment for vulvovaginitis due to C. albicans as more safe, effective, and shorter duration treatment modalities are available. It may useful, however, in the treatment of chronic recurrent vulvovaginal candidiasis due to azole-resistant strains or treatment failures.

Boric acid, also called boracic acid or orthoboric acid, is an inorganic acid with the chemical formula H_3BO_3. It is available as a white, odorless powder and in crystalline and granular forms. Boric acid vaginal suppositories are not commercially available and, therefore, must be compounded. Most studies documenting efficacy utilize 600 mg of boric acid powder in a gelatin capsule, although other extemporaneous formulations have been developed.

FORMULA:

Ingredient	Quantity Prescribed	Quantity Taken
Boric acid	600 mg	
Propyl Paraben	0.02 mg	
Coconut Oil	1.5 ml	

CALCULATIONS:

PROCEDURE:

1. All glassware and apparatus were washed and dried
2. Required quantity of chemicals were taken and weighed.
3. Melt Coconut oil until it is liquefied.
4. Pour the melted coconut oil into a dish and add calculated amount of boric acid powder
5. Mix the oil and powder well in a dish and try to eliminate as many clumps as possible then finally transfer the mixed mass on mould.
6. Keep the mould in freeze temperature for 15-20 minutes or until they are completely solid.
7. Separate the suppositoties, pack and store in cool temperature.

Use: Vulvovaginitis, vulvovaginal candidiasis and some other vaginal infections

Storage: At Cool temperature (temperature does not exceed 15^{o}C)

RESULT AND DISCUSSION:

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VIVA QUESTIONS:

Q.1 Why Propyl Paraben is added in the formulation?

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Q.2 What is Suppository?

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Q.3 Discuss uses of Boric acid suppositories.

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Q.4 What is the storage conditions of the suppositories?

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Q.5 Which base you may use in place of Coconut oil?

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Experiment No. 12

OBJECT:

To Prepare and submit Zinc Oxide Suppositories.

REFERENCES

1. L. Lachman, H. A. Lieberman and J.L. Kanig, The Theory and Practice of Industrial Pharmacy, 4th edition, 1991, Varghese Publishing House, Bombay.
2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi.

THEORY:

Suppositories are generally made from solid ingredients and drugs which are measured by weight. When they are mixed, melted, and poured into suppository mold cavities, they occupy a volume – the volume of the mold cavity. Since the components are measured by weight but compounded by volume, density calculations and mold calibrations are required to provide accurate doses. When a drug is placed in a suppository base, it will displace an amount of base as a function of its density. If the drug has the same density as the base, it will displace an equivalent weight of the base. If the density of the drug is greater than that of the base, it will displace a proportionally smaller weight of the base.

In case of Zinc oxide rectal: Follow all directions on the product package. Before use, clean the area with mild soap and water, rinse well, and pat dry. Use this product in the rectum only.

FORMULA:

Ingredient	Quantity Prescribed	Quantity Taken
Zinc Oxide	300 mg	
Glycerin	0.25 ml	
Methyl Cellulose	3 % w/v	
Ethanol	2 ml	

CALCULATION:

PROCEDURE:

1. All glassware and apparatus were washed/cleaned and dried
2. Required quantity of chemicals were taken and weighed
3. Zinc Oxide, Methyl cellulose and Glycerin was mixed in a dish
4. Then sufficient amount of ethanol 90% was added to produce wet mass.
5. Transfer and spread the wet mass on mould then keep to dry in oven at 40-50 oC for 1 hour.
6. Prepared formulation was packed in suitable container, labeled and submitted.

Use: Antimicrobial suppositories. For external use only

Storage: At room temperature. 20-25 ^{o}C

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 Why Methyl Cellulose is added in the formulation?

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Q.2 What is Suppository base?

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Q.3 Discuss uses of Zinc Oxide suppositories.

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Q.4 What is the storage condition of the Zinc Oxide suppositories?

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Q.5 How will you prepare Zinc Oxide suppositories?

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Experiment No. 13

OBJECT:

To prepare and submit Sulphur Ointment.

REFERENCES

1. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

2. L. Lachman, H. A. Lieberman and J.L. Kanig, The Theory and Practice of Industrial Pharmacy, 4th edition, 1991, Varghese Publishing House, Bombay.

THEORY:

An ointment is a homogeneous, viscous, semi-solid preparation, most commonly a greasy, thick oil (oil 80% - water 20%) with a high viscosity, that is intended for external application to the skin or mucous membranes. Ointments have a water number that defines the maximum amount of water that it can contain. They are used as emollients or for the application of active ingredients to the skin for protective, therapeutic, or prophylactic purposes and where a degree of occlusion is desired.

Ointments are used topically on a variety of body surfaces. These include the skin and the mucous membranes of the eye (an eye ointment), chest, vulva, anus, and nose. An ointment may or may not be medicated. Ointments are usually very moisturizing, and good for dry skin. They have a low risk of sensitization due to having few ingredients beyond the base oil or fat, and low irritation risk. There is typically little variability between brands of drugs. They are often disliked by patients due to greasiness.

The vehicle of an ointment is known as the ointment base. The choice of a base depends upon the clinical indication for the ointment. The different types of ointment bases are:

Hydrocarbon bases, e.g. hard paraffin, soft paraffin, microcrystalline wax and ceresine Absorption bases, e.g. wool fat, beeswax Water-soluble bases, e.g. macrogols 200, 300, 400 Emulsifying bases, e.g. emulsifying wax, cetrimide Vegetable oils, e.g. olive oil, coconut oil, sesame oil, almond oil and peanut oil.

The medicaments are dispersed in the base and are divided after penetrating the living cells of the skin.

Sulfur is used for several conditions and comes in ointment, cream, lotion, and soap. Sulfur in ointment is the formulation used for scabies and seborrheic dermatitis. Precipitated sulfur is considered a safe treatment for scabies. There is not clear evidence from studies showing how well it works. But it sometimes cures scabies, especially Norwegian scabies. Sulfur is used primarily to treat scabies in infants younger than 2 months, pregnant women, and breast-feeding mothers. In general, it is used only when permethrin or other medicine cannot be used. Sulfur is sometimes used to treat lice on very small infants, pregnant women, and nursing women, because it may be safer to use than other medicines.

FORMULA:

Ingredients for Sulphur Ointment:

Ingredient	Quantity Prescribed	Quantity Taken
Sublimed sulphur, finely sifted	50 gm	
Simple ointment	50 gm	

Ingredients for Simple Ointment 50 g:

Ingredient	Quantity Prescribed	Quantity Taken
Wool fat	2.5 g	
Hard Paraffin	2.5 g	
Cetostearyl Alcohol	2.5 g	
White soft paraffin or yellow soft paraffin	42.5 g	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried
2. Required quantity of chemicals were taken and weighed

3.a Prepared Simple Ointment by: melted together Wool fat, Hard Paraffin, Cetostearyl Alcohol

3.b White soft paraffin or yellow soft paraffin, and stirred it until cold in a separate dish.

3.b Sublimed Sulphur is triturated with a portion of the simple ointment until smooth.

4. Then the rest of the simple ointment is added gradually and mixed thoroughly.
5. Prepared formulation was packed in suitable container, labeled and submitted

Use: Used for scabies and seborrheic dermatitis.

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What is the color of Precipitated Sulphur?

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Q.2 How you will prepare simple ointment?

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Q.3 Discuss use of Sulphur ointment.

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Q.4 What is Seborrheic Dermatitis?

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Q.5 What is the roll of Cetosteryl alcohol in the formulation?

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Experiment No. 14

OBJECT:

To Prepare and submit Cold Cream.

REFERENCES

1. Ansel H.C., Ansel's Pharmaceutical Dosage Forms & Drug Delivery Systems, 8th edition, Lippincot Williams & Wilkins

2. L. Lachman, H. A. Lieberman and J.L. Kanig, The Theory and Practice of Industrial Pharmacy, 4th edition, 1991, Varghese Publishing House, Bombay.

THEORY:

Cold cream is an emulsion of water and certain fats, usually including beeswax and various scent agents, designed to smooth skin and remove makeup. The emulsion is of a "water in oil" type unlike the "oil in water" type emulsion of vanishing cream, so-called because it seems to disappear when applied on skin. The name "cold cream" derives from the cooling feeling that the cream leaves on the skin. Variations of the product have been used for nearly 2000 years.

Cold cream is mainly used for skin treatment, due to its moisturizing properties. It can also be used to remove makeup and as shaving cream.

FORMULA:

For 100 gm

Ingredient	Quantity Prescribed	Quantity Taken
White bees wax	7.3 gm	
Stearic acid	13.6 gm	
Woolfat	9.0 gm	
Liquid paraffin	15.0 gm	
Terpineol	1.5 gm	
Triethanolamine	1.9 gm	
Propylene glycol	7.3 gm	
Water	43.2 gm	
Perfume	q.s.	

CALCULATIONS:

PROCEDURE:

1. All glassware were washed and dried
2. Required quantity of chemicals were taken and weighed
3. Melt stearic acid, white bees wax, wool fat on water bath and then add terpinol.
4. Seperately warm water at the same temperature in another beaker.
5. Add trietanolamine with warmed water.
6. Incorporate the warm aqueous liquid to the melted oils and stir consistently to get creamy emulsion.
7. Stir thoroughly until the smooth cream is found and then cool it down to room temperature.

Use: Skin protection

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What is Cold Cream?

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Q.2 What is the purpose of cold cream?

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Q.3 What is the roll of trietanolamine in the formulation?

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Q.4 Discuss functions of cold cream on the skin.

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Q.5 Why Stearic acid is added in the formulation?

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Experiment No. 15

OBJECT:

To prepare and submit Vanishing Cream.

REFERENCES

1. L. Lachman, H. A. Lieberman and J.L. Kanig, The Theory and Practice of Industrial Pharmacy, 4th edition, 1991, Varghese Publishing House, Bombay.

2. Ansel H.C., Ansel's Pharmaceutical Dosage Forms & Drug Delivery Systems, 8th edition, Lippincot Williams & Wilkins.

THEORY:

Vanishing creams get their name from the fact that they seem to disappear when spread onto the skin. The first commercial vanishing cream, Hazeline Snow, was introduced by Burroughs Wellcome in 1892. Pond's, whose name is most closely linked with vanishing creams, began production in 1904. Despite the fact that vanishing creams were advertised as beauty creams, it is probable that their chief use was as a base for early face powders. Loose powders of the time did not adhere well to the skin, particularly if it had been cleansed with soap and water. Adhesion of the powder was improved if the skin was coated with a surface cream to give the powder something to which it could stick. A cold cream could have been used but it had a greasy feel so was unsuitable unless the skin was very low in oil. Vanishing creams, being water-based, had a non-oily feel and were generally a better solution.

Vanishing creams – which can also be called stearate creams – were known for their smooth, dry feel on the skin and their pearly sheen. Chemically they are oil-in-water emulsions consisting of stearic acid, an alkali, a polyol and water. The alkali reacts with some of the stearic acid to form a soap which then functions as the emulsifier. The polyol (e.g. glycerin) makes the cream more spreadable and also acts as a humectant to help prevent the cream from drying and cracking during storage in its container – packaging the cream in a screw top jar or tube was also important. There were limits to how much polyol could be included in the formulation; too much and it would absorb water from the air, causing the powder to spot and making repowdering necessary.

Vanishing cream can be considered to be an emulsion of a free fatty acid (usually stearic acid) in a nonalkline medium.

FORMULA:

Ingredient	Quantity Prescribed	Quantity Taken
Stearic Acid	15 g	
Glycerol	9 g	
Potassium Hydroxide	1 g	
Water	75 g	

CALCULATIONS:

PROCEDURE:

1. All glass wares were washed and dried
2. Required quantity of chemicals were taken and weighed
3. The oils, waxes, emulsifiers, and other oil-soluble components are heated to 75^0C in a dish.
4. The water soluble components (Alkalis, alkanolamines, polyhydric alcohols, and preservatives) are dissolved in the aqueous phase and heated to 75^0C in another dish.
5. To allow for evaporation of water during the heating and emulsification, about 3- 5% excess water (based on formula weight) is added.

Use: Skin protection

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What is Vanishing cream?

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Q.2 Why Vanishing cream used?

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Q.3 What is the roll of Potassium Hydroxide in the formulation?

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Q.5 How you will prepare Vanishing cream?

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Q.6 How vanishing cream works?

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Experiment No. 16

OBJECT:

To prepare and submit Potassium Chlorate Gargle.

REFERENCES

1. Remington's The Science and Practice of Pharmacy, 21st edition, 2005, Lippincott Williams & Wilkins, Philadelphia

2. Gupta A.K., Jain V K Pharmaceutics Practical Note Book, 1st reprint edition, 2007, CBS publishers & Distributors, New Delhi

THEORY:

Gargles are aqueous solutions for pharynx and nasopharynx, intended to be used after dilution with warm water. These are intended to bring the medicament into contact with the mucous surface of the throat. Contact period of the gargle and the mucous membrane being short, the preparation must have acceptable organoleptic properties and should be fast acting. Gargle should be dispensed in clear, fluted glass bottles closed with a plastic screw up. Gargles may contain antiseptic, antibiotic with or with out anesthetic. The preparation is taken in mouth and held in throat, then air from the lung is forced through the solution, after this the gargle is spitted or expectorated from the mouth.

Gargling is the act in which one bubbles a liquid in one's mouth. It usually requires that the head be tilted back, allowing a mouthful of liquid to sit in the upper throat. The head can be tilted by extending either the neck or the back, depending on what is comfortable for the gargler. Vibration caused by the muscles in the throat and back of the mouth cause the liquid to bubble and undulate throughout the throat and mouth region. Gargling can help with Cough, which is a disorder which is either caused due to the over-deposition of Mucus from the nose to the throat (that's why people get cold before cough) or because of a swelling in the internal walls of the throat due to any reason. Gargling rinses the throat and floods the Mucus from the throat to the tongue (from where one can spit or clean it off). For the cough due to inflammation in throat, the water soothes the inflammation and this eases the throat. warm water with a pinch of salt is advisable for gargle when one has cough

Potassium gargle is bactericidal and not to be swallowed.. This is diluted with warm water equal volume before use. Forexternal use only.

FORMULA:

Ingredient	Quantity Prescribed	Quantity Taken
Liquid phenol	1.5 ml	
Potassium chlorate	3 gm	
Water qs	100ml	

CALCULATIONS:

PROCEDURE:

1. All glass wares were washed and dried
2. Required quantity of chemicals were taken and weighed
3. Potassium chlorate was dissolved in small quantity of water
4. Liquefied phenol was added and sufficient water was added to produce the required volume
5. Prepared formulation was packed in suitable container, labeled and submitted

Dose: One table spoon diluted with 10 times warm water before use

Use: Sialogogue (increases flow of saliva) and astringent, For external use only

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What is Gargle preparation?

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Q.2 What is the Gargling?

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Q.3 Why Potassium Chlorate Gargle is used?

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Q.4 Discuss the concept of dissolution?

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Q.5 Potassium Chlorate Gargle is which type of solution?

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Experiment No. 17

OBJECT:

Prepare and submit Iodine Mouth Wash.

REFERENCES

1. Remington's The Science and Practice of Pharmacy, 21st edition, 2005, Lippincott Williams & Wilkins, Philadelphia
2. Jain N.K., Sharma S. N. A Textbook of Professional Pharmacy, 4th edition, Vallabh Prakashan, Delhi

THEORY

Mouth wash is an aqueous solution intended to wash the mouth. These are used for their deodorant, refreshing, or antiseptic effect.

These are aqueous solutions, sometimes concentrated solutions commonly used for cleansing the buccal cavity. The solution is swished in the oral cavity and then thrown out. The therapeutic mouth washes are used for the treatment of plaque, gingivitis, dental carries and stomatitis.

Mouthwash contains antimicrobial drugs with or without flavoring agents and is used to reduce the bad breath. Besides active constituents, mouth washes contain other excipients like alcohol, surface active agents, humectants, coloring and flavoring agents. Alcohol is used in the range from 10 to 20%. At this concentration, it can act as co solvent, preservative, solubilizer and enhancer of flavor and taste masking agent for the unpleasant taste of the drug. Glycerin and sorbitol are used as humectants to increase the viscosity and sweetness of the mouthwash. Suitable surface acting agents are used in 0.1 to 0.5% concentrations to remove the debris from the preparation through foaming action.

FORMULA:

Ingredient	Quantity Prescribed	Quantity Taken
Iodine	0.5gm	
Peppermint water qs	100ml	

CALCULATIONS:

PROCEDURE:

1. All glass wares were washed and dried
2. Required quantity of chemicals were taken and weighed
3. Iodine were dissolved in small quantity of vehicle
4. To the prepared solution, more vehicle was added to produce the required quantity
5. Prepared formulation was packed in suitable container, labeled and submitted

Dose: Dilute with equal quantity of warm water before use

Use: To clean and deodorize the buccal cavity, For external use

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What is mouth wash?

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Q.2 Discuss uses of mouthwash.

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Q.3 What is the roll of Iodine in the formulation?

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Q.4 How you will prepare peppermint water?

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Q.5 Discuss some other examples of mouthwashes.

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Experiment No. 18

OBJECT:

To prepare and submit Bentonite Gel.

REFERENCES

1. Ansel H.C., Ansel's Pharmaceutical Dosage Forms & Drug Delivery Systems, 8th edition, Lippincot Williams & Wilkins
2. Gupta A.K., Jain V K Pharmaceutics Practical Note Book, 1st reprint edition, 2007, CBS publishers & Distributors, New Delhi

THEORY

Bentonite is composed of hydrous aluminosilicate minerals, the staple of which is montmorillonite. Bentonite gel is kind of deep processing and development products with bentonite as main starting material, which is a kind of thixotropic gel and belongs to the non-newtonian liquid. Having the specific property of resisting well the dilute acid and alkali and good water proof, stability and heat resistance as high as 150-175 ºC, it has been widely used in building materials, environmental protection, daily chemical, pharmaceutical, ceramic, glass, paper making, casting, cleaning, batteries, etc.

Bentonite has been prescribed as a bulk laxative, and it is also used as a base for many dermatologic formulas. Granular bentonite is being studied for use in battlefield wound dressings. Bentonite is also sold online and in retail outlets for a variety of indications. entoquatam is a bentonate-based topical medication intended to act as a shield against exposure to urushiol, the oil found in plants such as poison ivy or poison oak. Bentonite can also be used as a desiccant due to its adsorption properties. Bentonite desiccants have been successfully used to protect pharmaceutical, nutraceutical, and diagnostic products from moisture degradation and extend shelf life. In fact, in the most common package environments, bentonite desiccants offer a higher adsorption capacity than silica gel desiccants. Bentonite complies with the FDA for contact with food and drugs.

Preparing a pure raw clay is best done differently than one would prepare a refined powder. Pure bentonite taken directly from a vein often resists adsorption of water. Soaking the clay often leads to large clumps which can sit in water indefinitely.

We placed several well sized clay chunks in a thin ceramic dish,

Next, a very small amount of water was added to the clay,

The water begins to penetrate the clay instantly. As it does so, the clay begins to expand. This process causes small fissures to form in the clay. As this is repeated, the clay begins to fragment,

This fragmentation allows water to universally penetrate the clay without mixing or further refinement of the process. The clay is then allowed to expand with its unique natural properties undisturbed.

We transferred the clay to a larger container to allow for the clay's expansion. This particular natural bentonite swells about five times its original volume.

We continued to add small amounts of water until no solid clay remained. If one knows the exact ratio of water to clay to be used, the remainder of the water can be added once there are no large solid chunks of clay within the container. Then, the clay mixture can be left to set. Any clumping will naturally be eliminated with time, provided that enough water has been used.

FORMULA:

Ingredient	Quantity Prescribed	Quantity Taken
Bentonite	50 g	
Purified Water qs.	100 g	

CALCULATIONS:

PROCEDURE:

1. All glass wares were washed and dried

2. Required quantity of chemicals were taken and weighed

3. To make 80ml of heated purified water, sprinkle upon it the bentonite, in portions allowing each portion to become thoroughly wetted without stirring.

4. Allow to stand with occasional stirring for 24 hours. Stir until a uniform magma is obtained. Add sufficient quantity of purified water to make 100ml and mix.

5. Prepared formulation was packed in suitable container, labeled and submitted

Use: As suspending agent for insoluble medicaments

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

RESULT AND DISCUSSION:

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VIVA QUESTIONS

Q.1 What is gel formulation?

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Q.2 Discuss uses of Bentonite.

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Q.3 How Bentonite works?

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Q.4 Give examples of some other gel formulation.

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Q.5 Explain roll of Bentonite as suspending agent.

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