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Chlorhexidine Mouthwash

Experiment 16 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To prepare the assigned chlorhexidine mouthwash and calculate a dilution from a stated stock concentration.

Principle

Chlorhexidine is a cationic antimicrobial ingredient. Its salt form, concentration basis and compatibility with formulation components matter. Incompatible anionic materials can reduce availability or cause precipitation. A concentrated stock must not be mistaken for a finished mouthwash.

Requirements

- Prescribed IP formula, chlorhexidine stock with stated salt and concentration, and all specified vehicle ingredients.
- Calibrated glassware, beaker, stirring rod and compatible bottle.

Procedure

1. Verify the stock

Read the ingredient label and establish whether strength is expressed as chlorhexidine gluconate or another equivalent. Calculate on the same basis as the target formula.

2. Calculate volume

Use $C_1V_1 = C_2V_2$ only when both concentrations use a matching basis. Have the calculation checked before measuring stock.

3. Prepare vehicle

Prepare the specified vehicle and soluble ingredients in the prescribed order. Avoid substituting a detergent or flavouring with unknown compatibility.

4. Combine and adjust

Incorporate the measured stock, mix and adjust to final volume. Inspect for turbidity, precipitation or separation.

5. Package and label

Record final volume and intended mouthwash strength. Include the assigned use instructions, do-not-swallow wording and storage; the practical product is not for unsupervised use.

Observations and Record

Check	Value / observation	Record
Stock identity	Salt and concentration basis	_____
Dilution	Stock volume and final volume	_____
Finished product	Clarity, separation and label	_____

Worked Example

The numbers below are illustrative; enter your own observations in the record.

- Teaching dilution: make 100 mL of 0.2% w/v chlorhexidine gluconate from 20% w/v stock on the same basis. $V_1 = 0.2 \times 100 \div 20 = 1 \text{ mL}$.
- Measure 1 mL stock and add the specified vehicle to a final volume of 100 mL. Do not add it to a premeasured full 100 mL of vehicle.
- The prescribed laboratory formula determines the actual mouthwash strength and other ingredients.

Result

Record the observed outcome and calculated value, with units. State whether the stated laboratory specification was met; do not copy the worked example as your result.

Precautions

- Confirm the chemical form and concentration basis before calculation.
- Do not add anionic soaps or unapproved excipients.
- Keep the concentrate clearly labelled and separate from the finished preparation.

Viva Questions and Answers

1. Why check compatibility?

Chlorhexidine is cationic and can interact with anionic formulation ingredients.

2. Why verify the stock label?

A percentage can refer to a particular salt or equivalent basis.

3. Does correct dilution prove quality?

No; identity, compatibility and required quality tests also matter.

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