Preparation of Castor Oil Emulsion

Experiment 5 - Practical Notes

Name: _____ Roll no.: _____ Date: _____

Aim

To prepare, evaluate, package and label an oil-in-water emulsion.

Principle

An emulsifier stabilises dispersed oil droplets in a continuous aqueous phase. In the dry-gum method, a primary emulsion is formed before dilution.

Working Formula

Use the assigned current monograph for ingredient grades, amounts and specifications. Enter the working quantities before starting.

Ingredient	Purpose	Working quantity
Castor oil	Dispersed oil phase	_____
Acacia	Emulsifier	_____
Purified water	Continuous phase	_____
Assigned sweetener / flavour	Palatability	_____

Scaling factor = required batch size / master batch size. Working ingredient amount = master amount × scaling factor.

Requirements

- Assigned master formula and ingredients
- Balance, measuring glassware and suitable mixing equipment
- Appropriate clean container and label

Procedure

1. Calculate

Use the assigned formula. For a fixed-oil dry-gum demonstration, the oil:water:gum primary ratio is commonly 4:2:1.

2. Form the primary emulsion

Triturate gum with oil in a dry mortar; add the calculated primary water and triturate briskly until a uniform primary emulsion forms.

3. Dilute gradually

Add remaining aqueous ingredients in small portions while mixing.

4. Complete

Transfer, rinse the mortar with vehicle and make to final volume.

5. Evaluate

Check uniformity and redispersibility; compare dilution and microscopy observations.

6. Package

Use the assigned container; include Shake well and the prescribed route.

Evaluation and Label

- Observe creaming, cracking, droplet appearance and dilution behaviour; irreversible separation differs from reversible creaming.
- Label the name, strength where relevant, route, batch/date, storage and institution-assigned use period. Mark laboratory preparations as training material.

Observations and Record

Check	Observation
Appearance / consistency	_____
Final mass or volume	_____
pH or other assigned test	_____
Packaging / label check	_____

Worked Example

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

- Example: 10 mL fixed oil needs 5 mL water and 2.5 g gum for the primary emulsion; additional vehicle is added to the assigned final volume.

Result

The training preparation was obtained as _____. Final yield: _____. Assigned quality checks: _____. It was packaged and labelled for the intended route.

Precautions

- Primary-emulsion water is not the whole final water quantity.
- Use a dry mortar for the initial dry-gum stage.
- Protect oxidation-sensitive oils from unsuitable storage.

Viva Questions and Answers

1. Why scale every ingredient?

The proportions must remain constant when batch size changes.

2. Why record the method?

Mixing order, temperature and technique affect the product.

3. Which quality checks are needed?

Observe creaming, cracking, droplet appearance and dilution behaviour; irreversible separation differs from reversible creaming.

4. Why is a label required?

It identifies the product, route, directions, storage and the training batch.

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