



# Simple Solution

By

Lecturer Nora Zavar Yousif

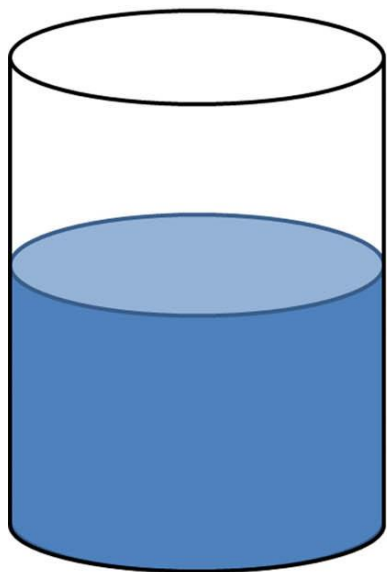
Lecturer Ashti Mohamed



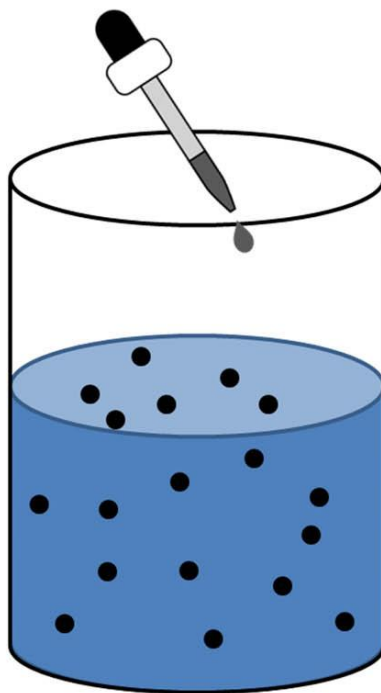
# Solutions

- are liquid pharmaceutical preparations. Which contain **one** or **more** **soluble** chemical substance dissolved in **one** or **more** suitable solvent and produce single-phase system.

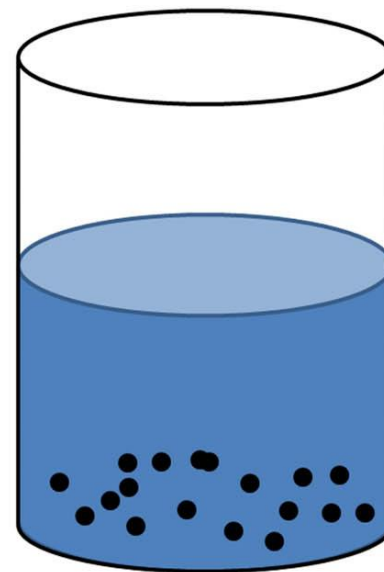




**Solution**

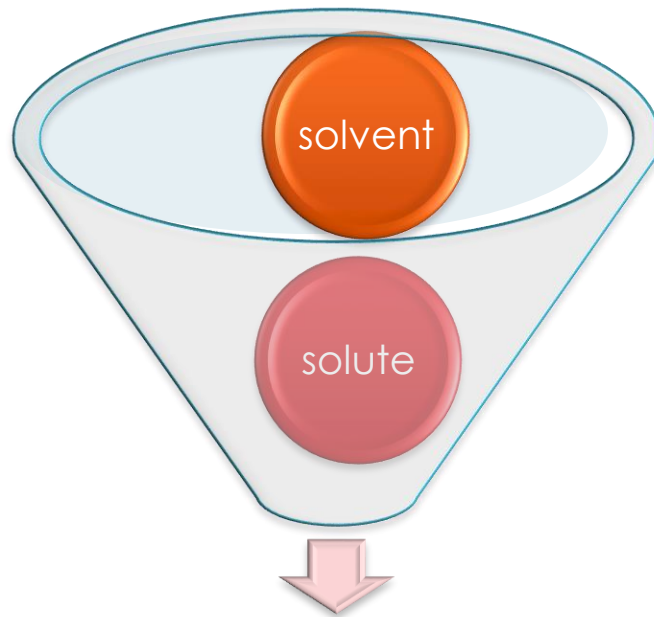


**Suspension**



**Precipitation**





Simple solution





**We have two types of solution:**

**Aqueous solution**

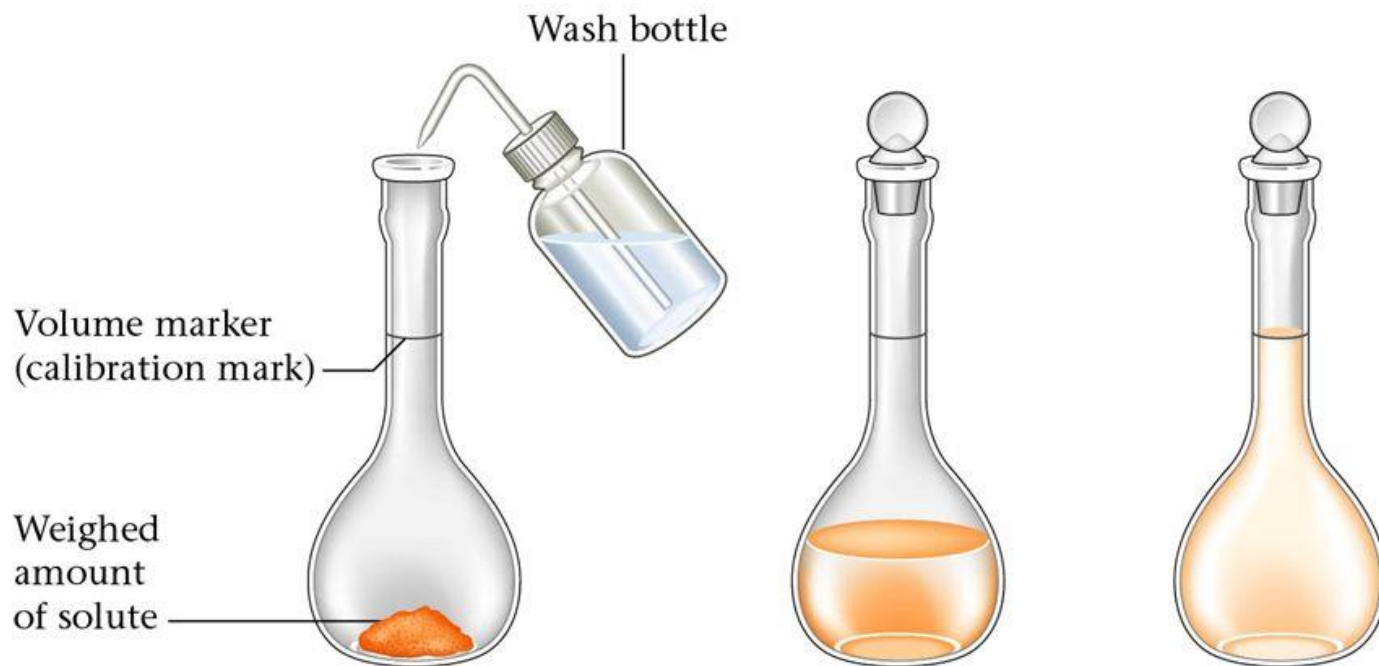
- **(solvent is water)**

**Non-aqueous solution**

- **solvent other than water**



# How to Mix a Standard Solution



# General procedure of preparation of simple solution

1

- Weigh the solid ingredient and put it in a beaker.

2

- Subtract the volume of liquid ingredient (in the formula ) from  $\frac{3}{4}$  of the final volume of the prescription.

3

- Dissolve the solid ingredients in the remaining amount of the vehicle.

4

- Add the liquid ingredient.

5

- Convert the content of the beaker into the measuring cylinder and complete the volume up to the required amount by the addition of the vehicle.

6

- Transfer the content of the measuring cylinder to a wide mouth bottle and put the suitable label.



# Examples

Rx

Glucose

5mg

D.W.

q.s

20ml





**Rx**

**NaCl**

**0.9 gm**

**Amaranth solution**

**2 ml**

**D.W.**

**q.s**

**100ml**

**Mitt.**

**50 ml**



# Percent:

- Means by hundred or in a hundred. It may be expressed as a ratio, represented as a common or decimal fraction.
- The ratio usually changes to decimal by dividing the number by 100. Example :  
 $30\% = 30/100 = 0.3$



# Percentage

- means rate per hundred so 50% and percentage of 50 are equivalent expressions.
- **There are three types of percentage:**
- **Weight/Weight:** it expresses the number of grams of the active ingredient in 100 gram of solution.
- **Weight/Volume:** it expresses the number of grams of active ingredient in 100 milliliter of solution.
- **Volume/Volume:** it expresses the number of milliliter of active ingredient in 100ml of solution.



# Examples

- Rx

Glucose 10%

NaCl 3%

Kcl 2%

D.W. q.s. 30ml



# Calculation

$$\frac{10\text{ gm}}{x} = \frac{100\text{ ml}}{30\text{ ml}} \} x = 3 \text{ gm of glucose}$$

$$\frac{3 \text{ gm}}{x} = \frac{100\text{ ml}}{30\text{ ml}} \} x = 0.9\text{ gm of NaCl}$$

$$\frac{2\text{ gm}}{x} = \frac{100\text{ ml}}{30\text{ ml}} \} x = 0.6 \text{ gm of kcl}$$

**30 x  $\frac{3}{4}$  = 22.5 ml of D.W.**



# Procedure

- Weigh 3gm of glucose and 0.9gm of NaCl and 0.6 of KCl by using balance then put it in a beaker.
- Dissolve the active ingredient in 22.5ml of D.W.
- Convert the content of the beaker into a measuring cylinder and complete the volume to 30ml by D.W.
- Transfer the content of the measuring cylinder into wide mouth bottle and put a suitable label.



How many grams of glucose required to prepare 200ml of 10% solution?

$$\frac{100ml}{200ml} = \frac{10gm}{x} \} x = 20 \text{ gm of Glucose}$$



In certain preparation 40ml of glycerin was used to prepare 250ml solution. What is the % v/v of glycerin in this solution?

$$\frac{250ml}{100\%} = \frac{40ml}{x} \} x = 16\%$$






How many grams of glycerin should be used to prepare 250g of 5% w/w solution

- $$\frac{5gm}{x} = \frac{100gm}{250gm} \} x = 12.5gm$$





**Any question  
????????????**

