

lab. Instruments 3

A . Lecturer
Ahmed Maki N. Al - Mualla

Centrifuge

Is an instrument which is used for separation of solid material from liquid suspension by centrifugal force. In which the objects or samples put in the special tubes of various sizes (made of glass or plastic).

Principle:

The centrifuge works using the sedimentation principle, where more dense substance to separate out and become at the bottom of the tube, when we uses a centrifuge on blood, the blood cells collect at the bottom while the blood plasma moves to the top.

Centrifugal force depends essentially on variables (mass, shape, speed and radius).

Types of centrifuge :

1- Ordinary centrifuge:

A) Laboratory centrifuge.

B) Micro centrifuge (Hematocrit centrifuge).

Both have speed dose not excess (10,000-12,000 or 15,000) round per

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Method of operation:

- 1-Put equal volume for each test tubes being tested.
- 2-Keep the lids always closed during the operation.
- 3-The test tubes should be oppositely located.
- 4-Use always suitable tubes to material in use.
- 5-Turn the switch on the suitable speed and determine the time.
- 6-Leave it till stops, don't try to stop it by your hands.

In centrifugation it is important to differentiate between the speed of centrifugation (**revolutions per minute, RPM**) and the **relative centrifugal force (RCF or G)** since these are often confused. The centrifugal force generated by a centrifuge can easily be calculated from the equation:

$$RCF = 11.18 \times R \times (RPM/1000)^2$$

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where **R** is the distance from the center of rotation in centimeters; that is, the centrifugal force increases as the particles move down the centrifuge tube.

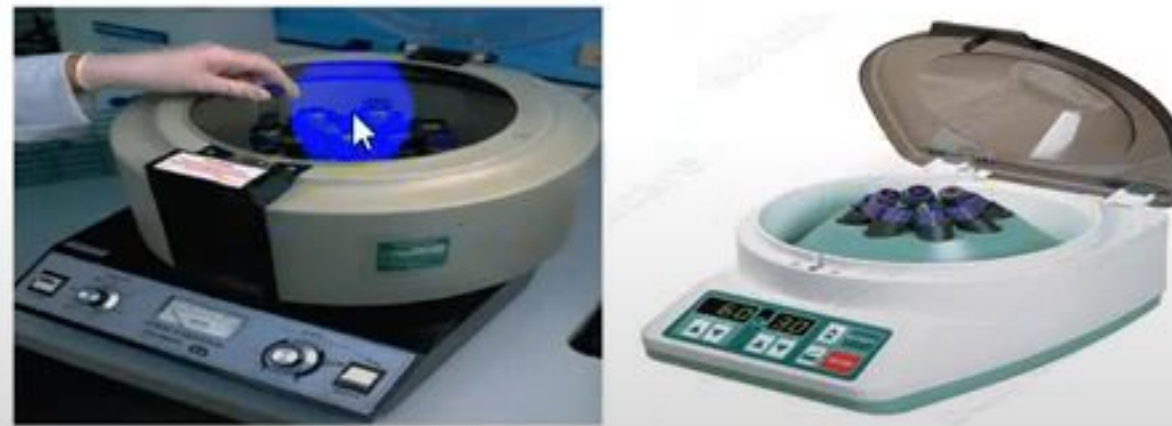


Figure (1) : Centrifuge

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