



Al-Mustaqbal University
College of Sciences Intelligent
Medical Systems Department

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LECTURE(3) :

Subject :Blood collection

Level: first

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Blood collection

Types of Specimens

The laboratory refers to blood specimens primarily in terms of whole blood, plasma, and serum.

A whole blood specimen contains erythrocytes, leukocytes, and platelets suspended in plasma .

Tests related to blood cells, such as the complete blood count (CBC) and blood typing, are performed on whole blood.

The majority of laboratory tests are performed on the liquid portion of blood (plasma or serum).

Plasma is the liquid portion of blood that has not clotted; contains fibrinogen and other clotting factors

Serum is the liquid portion remaining after clotting has occurred serum as the liquid portion that does not contain fibrinogen and other clotting factors.

Both serum and plasma are obtained by centrifugation.

The presence or absence of **anticoagulants** in the tubes into which blood specimens are placed determines the type of specimen available for testing.

Whole blood and plasma require an **anticoagulant** to prevent clot formation. Serum is obtained from tubes that do not contain an anticoagulant.



Normal serum and plasma appear **clear and pale yellow**. Variations in the normal appearance can indicate that certain test results may be adversely affected.

Types of obtained blood

Venous blood is the specimen of choice for clinical laboratory testing and most normal values are based on venous blood.

However, tests also are performed on **arterial** and **capillary** specimens. Venipuncture is when a vein is pierced by a needle for either intravenous injection or the removal of blood. **Veins are favored over arteries because they have thinner walls, and thus they are easier to pierce. There is also lower blood pressure in veins so that bleeding can be stopped more quickly and easily than with arterial puncture.**

Capillary blood is a mixture of arterial and venous blood and is collected by dermal puncture. When properly collected, capillary blood is suitable for many laboratory tests, **but normal values may differ from those of venous blood.**

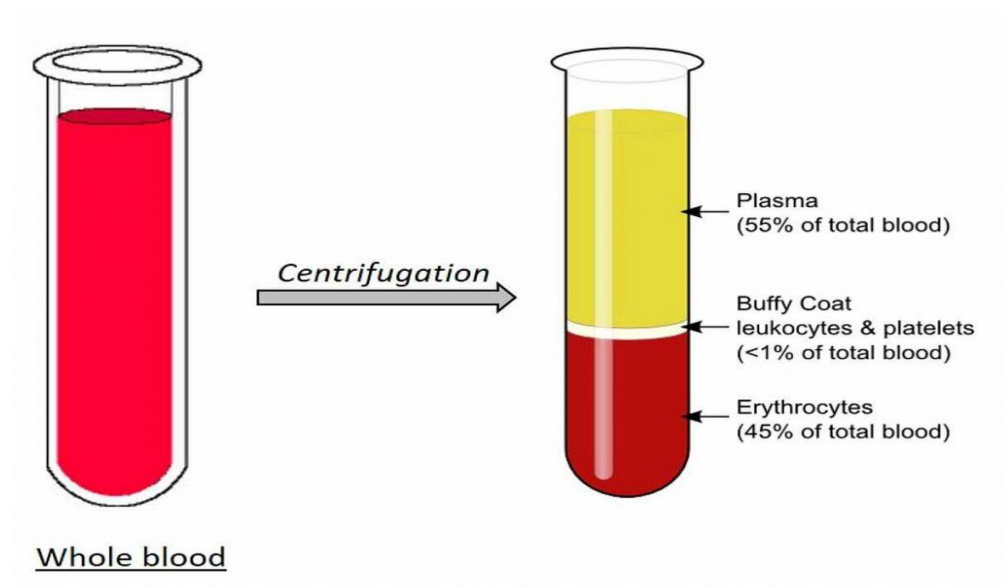
Protocol of preparation

1. **Draw** 12 mL of whole blood for each 5 mL of serum or plasma needed. Collect in an appropriate collection tube.
2. **Centrifuge** for at least 15 minutes at 2200-2500 RPM
3. **Pipette the serum or plasma** into a clean plastic **screw-cap vial** and attach the label.

If the serum or plasma is not analyzed immediately, the serum should be divided into 0.5 ml, stored, and transported at –20°C or lower.

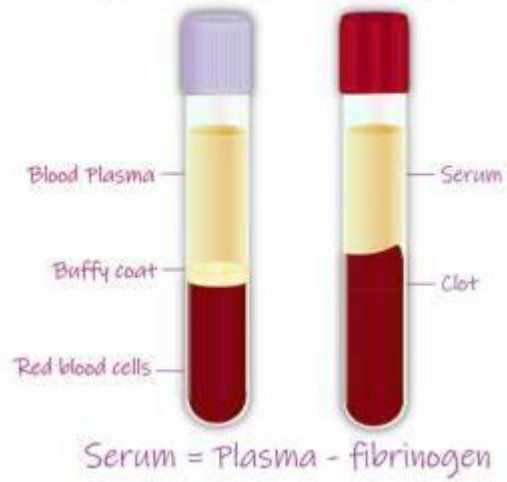


WHAT YOU DO IF THE SERUM OR PLASMA NOT IMMEDIATELY ANALYZED?





Plasma vs Serum





Blood Collection Tubes

1. Anticoagulant Blood Collection Tubes
2. Vacuum blood collection tube, gel

