Anticoagulants

When blood is collected, it clots after sometime. The anticoagulants are a chemical agents which prevent the clotting of blood when mixed with blood in proper proportion.

Purpose of using of anticoagulants

1. For study of various constituents of blood components.
2. Study of coagulating (clotting of blood)
3. Preservation of blood in blood bank.

Properties of anticoagulants

1. It must be soluble in blood.
2. It must be keep the blood in fluid condition.
3. It must not be bring hemolysis of blood cells.
4. It must not be change the size of RBC.
5. It must be minimize destruction of leukocytes.
6. It must be minimize aggregation of platelets.

Classification of anticoagulants

1. Calcium chelators (bind with calcium), such as :

- Oxalates

It is following forms:

1. Ammonium oxalate
2. Potassium oxalate

- EDTA (Ethylenediamintetraacitiacid).
- Tri-sodium citrate.

2. Non-calcium chelators (do not bind with calcium), such as :

- Heparin
- Warfarin

Types of anticoagulant tubes:

1. **Blue-Top tube (Sodium citrate):**

   This tube is used for coagulation studies (PT and PTT). It prevents blood from clotting by binding calcium.

2. **Lavender-Top tube (EDTA):**

   EDTA is the anticoagulant used for most hematology procedures. EDTA prevents clotting by binding calcium. Its primary uses is for the CBC. The larger tube is used for blood bank procedures.

3. **Green-Top tube (Sodium or Lithium heparin) :**

   This tube is used for routine chemistry tests. Heparin prevents clotting by inhibiting thrombin and thromboplastin.

4. **Gray-Top tube (Potassium oxalate) :**

   This tube is used for glucose tolerance testing. Oxalate prevents clotting by precipitating calcium.

5. **Red-Top Tube :**

   This tube has no anticoagulants, and it used for many chemistry tests, serology and immunology.