Blood sampling :

المحاضرة الخامسة عشـر

For blood collection must be use the following steps:

1. **Draw the blood though a syringe from the jugular vein (in the side of the neck) .**
2. **Empty the sample in glass tube either with or without anticoagulants .**
3. **Put the blood sample (with anticoagulant) in the centrifuge to separate the plasma from the other cellular elements .**
4. **Let the blood sample (without anticoagulants) to be clot for separation of the serum**

- ## ***Blood testes :***

1. ***Packed cell volume (PCV):***

This test measure the volume of red cells in the blood by using thick wall, graded glass tubes called "Wintrobe tubes".

Animal type	PCV (%)
Sheep	32
Dog	45
Cow	40
Horse	42
Cat	37.3
Chicken	30.6

2. ***Erythrocyte sedimentation rate (ESR) :***

Add the blood sample with anticoagulant agent to long graded tube called "Westergren pipette" and leave it for a period . We will see that red blood cells sediment in the bottom of the tube while the plasma stay floating because the red cells are more dense than the plasma.

The following is table show the ESR rate in different animals.

Animal	Millimeter	Time
Dog	6 - 10	1 hour
Cow	2.4	7 hour
Horse	15 – 38	20 minutes
Cat	15.4	1 hour
Chicken	1.5	1 hour

Types of blood cells:

A. ***Erythrocytes or Red blood cells (RBCs.):***

Red blood cells in mammals are immobile, nucleus less cells . Appear like a disc concaved from the two sides. Rbcs generated mainly from the bone marrow. The main function of Rbcs is transport of O_2 and CO_2. The red blood cells live in human about 90 – 120 days.

B. ***Leucocytes or white blood cells (W.B.Cs.):***

It is less than erythrocytes in number appear as translucent cells contain nucleus. Its number changed according to:

1. **Exercise.**
2. **Nutrition.**
3. **Stress factors.**
4. **Inflammation.**

White blood cells can be classified into:

1. **Granulocytes they include:**

- **Neutrophils.**
- **Eosinophils.**
- **Basophils.**

2. **Agranulocytes they include:**

- **Lymphocytes.**
- **Monocytes.**

Detection of pathogens in blood:

There are many diseases can be detected in blood through different tests. They include:

1) **Using Microscope: there are pathogens can be seen by microscope for example :**

- ***Theileria***
- ***Babesia***
- ***Trepanosoma spp.***

2) **Using culture media: through growing bacteria in blood on special cultures.**

3) **Using antiserum tests: antibody – antigen test.**