Lab2

Microscope

A microscope is a device for magnifying small objects that cannot be seen with the naked eye. Its uses and applications include many fields.

The importance of the microscope: The microscope is mainly used to study microorganisms such as bacteria, amoeba, algae, and other unicellular organisms, and plants, and to learn a lot about their world, and to study living cells, their parts, and their components.

Most microscopes used in microbiology consist of three objective lenses: the small lens (10X), the large lens (40X), and the oil lens (100X). The final magnification of the microscope is calculated by multiplying 10 or 40 or 100 X 10, since the magnification of the eyepiece is (10X).



Parts of the compound light microscope

The compound light microscope is a sensitive tool that must be handled with care. It consists of the following parts:

1- ocular eyepiece lenses

The eyepiece lens is the lens through which we see the sample as it is located in the upper part of the tubular body and the magnification power of this lens is ten times (100). Most microscopes contain two eyepieces and a few contain one eyepiece lens.

2- Body tube

It is the cylindrical part of the microscope that carries the eyepiece lenses at the top.

3- Objective lenses

It is a group of three to four lenses connected to the disc, the short objective lens with the smallest magnification power (4), the middle objective lens with the largest magnification power (10), and the largest objective lens with the largest magnification power(40) in addition to the fourth lens, which is the oil lens, which has a magnification power of 1000 times (100). An oil called sidr oil extracted from sandalwood is added to the slide when using the oil lens, while no material is used with the other lenses.

4- Stage

It is the flat place on which the glass slides on which the sample is to be examined are placed, and there is a small opening that allows light to pass through the slide.

5- Condenser

The condenser is located under the stage opening and its function is to collect the light rays, where we can control the focus of the light directed to the slide by moving it up and down.

6- Iris diaphragm

It is a small part fixed on the lower surface of the stage and connected to the condenser, through which we can regulate the amount of light entering the objective lens through the slide.

7- Rotating disc

It is a circular part connected to the lower part of the tubular body and is used to change the positions of the objective lenses connected to it.

8- Large regulator

It is a large wheel located on both sides of the microscope and is used to regulate the distance between the stage and the objective lens to obtain a clear view, it is used with the small objective lenses (4) and the middle (10) and is not used with the large objective lens (40) and the oil lens (100).

9- Small regulator

It is a small wheel also located on both sides of the microscope, where it is used to help see the sample more clearly and is used with the large objective lens (40) and the oil lens (100).

10- Compressor (Clip)

There are two of them on the stage used to fix the slide on the stage.

11- Arm

It is the support used to carry the microscope and which also carries the cylinder.

12- Base

It is the lower part on which the microscope rests.

13- Light source

It is a lamp located at the base of the microscope that provides the necessary light for viewing