

# Introduction to Microbiology

## Safety rules in the lab:

- 1) Always wear lab coat and gloves inside the lab.
- 2) Cover any minor cuts on your body.
- 3) Never eat, drink or smoke in the lab.
- 4) Never mouth-pipette.
- 5) Report any accident to your supervisor.
- 6) Never take any culture out of the lab.
- 7) Always wash your hands before leaving the lab.

**Microbiology:** Study of small organisms.

Ex. Bacteria, viruses, fungi and parasites.

Found in: Air, soil, water and in our bodies

## Name and function of common items used in the lab:

- ❖ Burner: To provide area almost free of organism.
  - A. Bunsen burner: use flame.
  - B. Bacti burner: it's electrical.
- ❖ Loops: To transfer organism from one place to another (from culture to the slide).
  - A. Wire loop: large amount.
  - B. Straight loop: small amount.

The loops are made up of special material called (Nichrome). It heats and get cool rapidly.

- ❖ Slide: To place the organism on top of it to examine it under the microscope.
  - A. Plain slide.
  - B. Frosted end slide.
- ❖ Cover slip: Used to cover the stained slide to protect it from scratching and save it for a long time.

❖ Pipettes: Used to transfer solution from one place to another.

A. Graduated pipette: to transfer specific amount of solution.

Use **Bi-pump** with it.

B. Pasteur pipette: to transfer non specific amount of solution.

❖ Container: Use it to collect sample from the patient.

It should be sterile.

A. Universal container: 25 ml. Use to collect large amount of sample, like: urine, sputum.

B. Bijou bottle: 5ml. Use to collect small amount of sample, like: CFS, gland fluid.

❖ Petri dish: Use it to put media inside it for culturing.

It should be sterile.

❖ Disinfectant jar: Use it for the disposal of some used items, e.g. Slides, cover slips, pipettes.

➤ Disinfectant: it is a chemical substance that kills or inhibits the growth of micro organisms.

➤ Incubator:

Incubator is a warm cabinet that you can set its temperature to a proper temperature for bacteria growth. About 37° C is a good temperature for most bacteria. This is close to the body temperature.

➤ Autoclave: Use for sterilization. Its cycle (121°C, under 15 atm pressure for 15-20 min).

➤ Autoclave bag: Made of material that tolerates high temperature.

❑ What is saline?

It is 0.9% NaCl in H<sub>2</sub>O = 0.9 g of NaCl dissolved in 100 ml water.

❑ Its function: Keeps the intact morphology of the cell of the bacteria by regulating the osmotic pressure.

#### **Disposal of used items:**

1. Trash bag: for non infectious material. (Tissues, covering plastic).
2. Disinfectant jar.
3. Autoclave: for contaminated glass wears and flasks, which are reusable items.
4. Autoclave bag: for plastic items (Petri dish, container) which are disposable.