

First Lab

Safety Procedures and Precautions

1. Laboratory coats are worn.
2. Long hair is tied back away from the shoulders.
3. Working areas are kept clear of all unnecessary items.
4. Hand and bench tops are kept clean with disinfectant.
5. Nothing is placed in the mouth such as fingers, pencils or any subject.
6. Do not smoke, eat or drink in the laboratory.
7. Any student with a fresh, unhealed cut, scratch, burn or other injury on either hand should notify the instructor before beginning or continuing with the laboratory work.
8. If you should spill or drop culture or if any types of accident occur, call the instructor immediately.
9. Unnecessary activities can cause accidents and promote contamination.
10. Before leaving the laboratory, carefully wash and disinfect your hands.

Tool, instrument & equipment

□ **Loop:** use for transfer of bacterial cells from medium to another (as colony or drop "0.01ml"), sterilized by the flame of burner after and before using.

□ **Slide:** use for the examination .placed on microscope stage.

□ **Cover- sips:** placed on the slide, the sample will be between the cover and the slide.

□ **Test tube:** use to place the broth, solid, or semi-solid medium for stabbing, or place as slant for bacterial culturing. The empty tubes or with uncultured broth sterilized by autoclave (15 min) but with cultured broth by autoclave (30 min).

□ **Petri-dish** (petri-plate): use for place the solid medium in it. Glass petri-plate use for many times &sterilized by oven or by autoclave .sterilized plastic plate use for one time.

□ **Flask:** used for place cultured or uncultured broth in it. Sterilized after plugs with cotton by autoclave.

□ **Beaker:** use for graduate the volume of fluid. Sterilized by oven.

□ **Cylinder** (graduated cylinder): use for graduate the volume of liquid. Sterilized by oven.

□ **Washing bottle:** use to filled with liquids (specially distilled water) for washing and homogenizing the glass wares and washing the slide during the staining, don't need for sterilization.

□ **Burner:** may be gaseous or alcoholic ,use for sterilization of the loop ,needle and other metal tools by the fame (dry heat sterilization)

□ **Autoclave:** equipment with high temperature, pressure and steam to sterilize the culture media and some of metal tools and glass wares.

○ Temperature=121 C⁰

○ Pressure=1 atm (15 pound/inch²)

○ Time=10-30 min.

□ 10 min. for media with sugar

□ 15 min for uncultured media

□ 30 min. for cultured media & contaminated tools & glass wares

Sterilization by autoclave named (wet heat sterilization) the death of bacteria take place by protein denaturation.

□ **Oven:** the sterilization is dry heat sterilization, the death of bacteria take place by oxidation, use for sterilization of glass wares and some metal tools.

○ Temp. = 180°C

○ Time = one hour and half

□ **Incubator:** for the availability of suitable temperature for growth of microorganism by place the culture media in it, for example pathogenic

bacteria growth in optimal temperature 37°C for 18-48 hours (the optimum 24hrs.)

□ **Refrigerator:** use to place the sterilized media and broth then not use to avoid the contamination, and also to preserve the bacterial cultures for long time by preventing the growth in 4°C .