

: Lab (2)

Sterilization

Sterilization :

process which is used to **kill** or **remove** all form of microorganisms like bacteria, fungi ..etc

Things that can be sterilized:

Petri dishes



Pipettes



Beakers

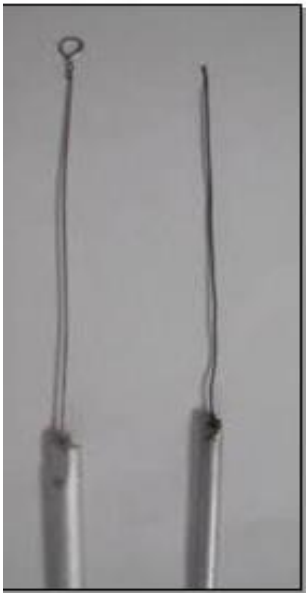


Flasks



Things that can be sterilized:

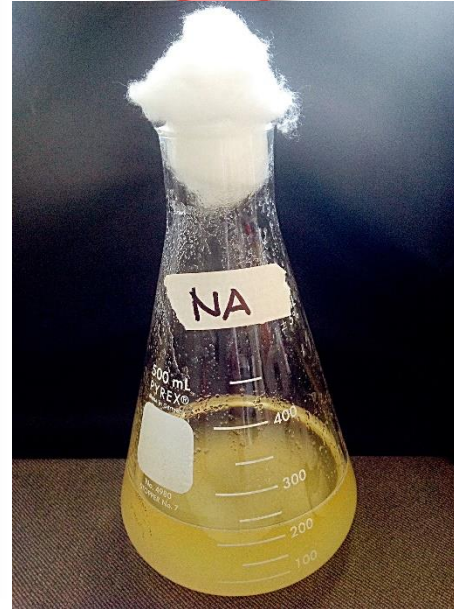
Needles



Apparatus



Media



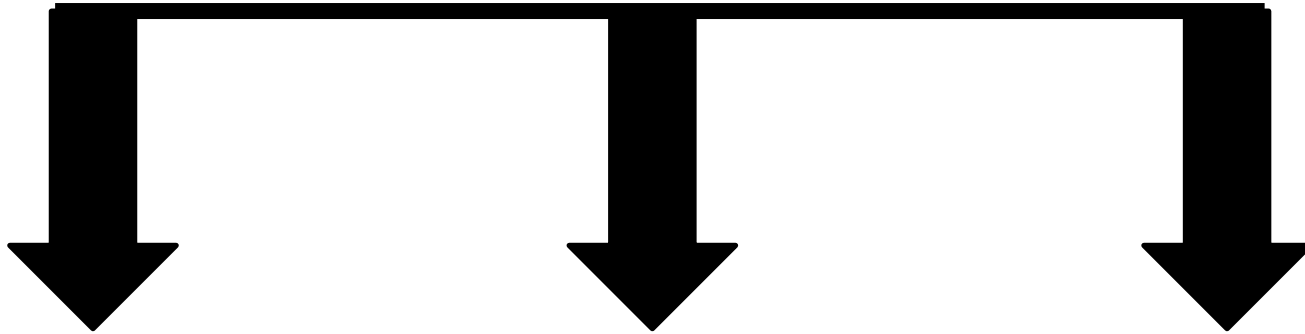
Clothes



- **Petri dish :**
- A petri dish is a flat dish made of plastic (disposable) or glass (autoclavable) with a cover that is used to grow Microorganisms.



There are 3 different sterilization principles:



**1- Heat
sterilization**



**2- Chemical
sterilization**



**3-Radiation
sterilization**



1- Heat sterilization

- **There are 2 procedures :**

1- Steam sterilization
(Autoclaving) or wet .

2-Dry heat sterilization
(hot air oven).

- **Advantages: simple, most effective and inexpensive method.**

1- Steam sterilization (Autoclaving) or wet :

- It includes **autoclaves**
- **Used to sterilize culture media, glassware etc.**
- **Usually it operates at 15 lb/sq. inch steam pressure (121.5 C) for 30 min.**



1- Steam sterilization (Autoclaving) or wet :

- **The advantage of using an autoclave is that it can reach temperatures higher than boiling water alone, so it can kill not only bacteria but also bacterial spores, which tend to be resistant.**

2-Dry heat sterilization (hot air oven) :



- It includes oven.
- This kind of dry heat sterilization is recommended when it is undesirable that steam make contact with the material to be sterilized. This is true **for glassware's – glass petri plates, Pipettes** as well as for substances like oil, powder, etc.
- Before sterilization wrap them in aluminium foil to avoid recontamination.

Direct heat :

2- Bunsen burner produces gas flame which used for heating, sterilization (inoculating loop and needled) .



Bunsen burners , flames

2- Chemical sterilization

50% Dettol



Benches /tables

**Ethylene oxide
and formalin**



**For sterilizing disposable
materials (that can not tolerate
high temperatures).**

3-Radiation sterilization

Gamma rays, U.V Rays.

Other sterilization techniques:

- Filtration
- Boiling
- Cold temperature

