Comparison between dry heat sterilization and moist heat sterilization?

There are the different processes of sterilization. One has to choose the best one which will be suitable for the purpose and the thing, which is to be sterilized.

There are chemicals or the instruments, which are heat sensitive. These cannot be sterilized with flame or autoclave. For chemicals to sterilize filtration through membranes with the pore size less than the microbe's size is used. This method is called as filter sterilization. The chemicals are dissolved in solvent and they are passed through nitrocellulose membranes under certain pressure. The sterile filtrate is collected in sterile container.

Heat sterilization is the process where the things are treated either directly with flame (surgical instruments are put on directly on flame to sterilize them) or they are kept t high temperature in oven (300 degrees C or above) for some time. At this high temperature the microbes are killed.

Autoclave is used for sterilization of materials that are not heat sensitive or their properties are not changed after autoclaving. Microbes can be killed at 121 degrees C. This temperature cannot be achieved at normal atmospheric pressure. Autoclave is equipment, which is used to achieve this temperature. Its function is based on the principle: Increase in pressure increases the boiling point of a liquid. The same principle is used in our pressure cookers. Water is put in the autoclave for boiling. The lid of the autoclave is tightly closed. As the water gets heated water vapour is formed. It cannot go out as the autoclave is tightly closed. The water vapour formed inside the autoclave exerts a pressure on the water. Therefore boiling point of the water increases. The pressure inside the autoclave is so adjusted that the water starts boiling at 121 degrees C. The excess pressure is released through a valve. The temperature of the water vapour is now sufficiently high to kill the microbes. The things are kept inside the autoclave for 20 min to 1 hour for sterilization.

Radiations are effective when a large quantity of materials to be sterilized. The radiation

treatment needs specialized equipment. Usually the consumable plastic ware such as Petri plates, pre-sterilized scalpel blades etc are sterilized before they are sold.