

THE MANY DIFFERENT TECHNIQUES USED TO STERILIZE CULTURE MEDIA IN A LABORATORY PROCEDURE

So what are the most common methods of sterilisation, and how do they work? This is a very effective method that kills all microbes, spores and viruses, although for Both work by denaturing proteins through a process that requires water, UV, x-rays and gamma rays are all types of electromagnetic radiation that have.

This can reduce heat-induced damage to food products. Serological pipets and pipet pumps may be used instead of automatic pipettors. Increased oxygen levels also contribute to the formation of toxic free radicals that inhibit the growth of oxygen-sensitive or anaerobic bacteria like as *Clostridium perfringens*, a common cause of gas gangrene. Different microorganisms will respond differently to high temperatures, with some e. Unsourced material may be challenged and removed. This is effective because many spores are stimulated to grow by the heat shock. Viruses as well as other microorganisms are inactivated by exposure to ionizing radiation. Salted meats and fish, like ham and cod, respectively, were critically important foods before the age of refrigeration. It is used to limit airborne or surface contamination in a hospital room, morgue, pharmacy, toilet facility, or food service operation. Such improvements are then mandated to retrofit existing facilities and future design. This degradation occurs at even very low concentrations of the gas. Whereas some microorganisms are relatively resistant to drying, other microorganisms are unable to survive desiccating conditions for even a short period of time. All of these experiments can be done at a comfortable room temperature, but the yeast tolerate almost any temperature that people can. Other uncommonly used designs use dry storage, providing movable shields that reduce radiation levels in areas of the irradiation chamber. A major appliance company has also experimented with an ultrasonic washing machine. Disposable bulbed pipets are also acceptable for most of the experiments in this handbook. This method also burns any organism to ash. The disadvantage of using ozone is that the gas is very reactive and very hazardous. Formaldehyde is less expensive and has a much longer shelf-life if some methanol is added to inhibit polymerization to paraformaldehyde, but is much more volatile. You can use a flamed loop to transfer the cells but a sterile toothpick is usually easier. Make sure the cap of the Scott bottles must not too tight to prevent breakage off the Scott bottles. For standard 10 cm plastic plates the appropriate diameter is approximately 3. Berkefeld filters are manufactured in Germany. The method was called fractional sterilization because a fraction was accomplished on each day. They are composed of hydrous aluminium silicate or kaolin with the addition of quartz sand and are heated to a temperature sufficiently low to avoid sintering. Materials: Sterile, capped 13 x ml culture tubes Sterile water Sterile 1-ml pipets disposable bulbed pipets or serological pipets and pipet pump Micropipettor and sterile tips optional Paper clip or glass spreader: The cells are distributed over the surface of the agar with spreaders. We recommend that you identify each plate with the strain number, dose for radiation experiments, dilution plated, and your initials, but you may prefer to code this information in your notes and put the code letters or numbers on the plate. Like ultraviolet radiation, long wavelength infrared radiation nanometers and microwave radiations wavelengths greater than nanometers have poor penetrating power. Isolating Single Colonies Many experiments require growing colonies from isolated single cells. Because air is more completely eliminated, the steam can more easily penetrate wrapped items. The most common method of irradiation is to expose food to cobalt or cesium by passing it through a radiation chamber on a conveyor belt. This means that no aeration of the devices is required immediately following the sterilization cycle. When his first patient dies of the disease, Manson becomes terribly distraught. Quantitative pour plating method This method requires the preparation of a separate final dilution tube for each plate and then the entire contents of the tube are poured onto the agar surface. The endospores of the obligate thermophilic bacterium *G.* However, moist-heat sterilization is typically the more effective protocol because it penetrates cells better than dry heat does. Yeast Strains The experiments make use of the following strains: Haploids:. These filters are prepared in graduated degrees of porosity, from LI to LI3. They are used to raise temperatures above the boiling point of water to sterilize items such as surgical equipment from vegetative cells, viruses, and especially endospores, which are known to survive boiling temperatures, without damaging the items. Alterations in taste or smell may occur in irradiated foods with high fat content, such as fatty meats and dairy

THE MANY DIFFERENT TECHNIQUES USED TO STERILIZE CULTURE MEDIA IN A LABORATORY PROCEDURE

products, but this effect can be minimized by using lower doses of radiation at colder temperatures. Sensitivities to ionizing radiation vary.