



“बेटी बचाओ, बेटी पढ़ाओ”

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FACULTY OF PHYSIOTHERAPY & DIAGNOSTICS

Faculty Name : JV'n SEEMA GANGWAR (Lecturer)
Program : VII Sem
Course Name : Microbiology
Digital Session name : Culture Method

Program outcome : To acquaint students with basic concepts of microbial diversity and how the microbe concept emerged.

Course outcome -

Know General bacteriology and microbial techniques for isolation of pure cultures of bacteria, fungi and algae Master aseptic techniques and be able to perform routine culture handling tasks safely and effectively comprehend the various methods for identification of unknown microorganisms

Understand the microbial transport systems and the modes and mechanisms of energy conservation in microbial metabolism – Autotrophy and heterotrophy

Know the various Physical and Chemical growth requirements of bacteria and get equipped with various methods of bacterial growth measurement.

Academic Day starts with –

- Greeting with saying ‘**Namaste**’ by joining Hands together following by 2-3 Minutes Happy session, Celebrating birthday of any student of respective class and **National Anthem**.

Lecture Starts with- Review of previous Session- NA

- Topic to be discussed today- Today We will discuss about the FIRST AID Lesson deliverance (ICT, Diagrams & Live Example)-

TOPIC –Culture Method

Microbiological cultures are multiplied microbial organisms that are grown in a preset culture medium in a laboratory. Growing a microbial culture requires an appropriate physical environment with controlled pH, atmospheric gases, temperature, and pressure.

Other nutritional requirements of the microbes include carbohydrates, proteins, salts, vitamins and growth factors. Microorganisms are cultured to determine the species of the organism, to detect its presence in a sample and for diagnostic purposes.

It is important to obtain pure cultures for the proper identification of the microorganisms. Also known as axenic culture, pure cultures are the ones that grow in the absence of the other species. For obtaining pure culture, there are various methods used. Let us study them briefly.

Methods of Bacterial Culture

1. **Broth Cultures** : It is a method to grow bacterial culture in liquid broth medium, such as Luria broth. The broth is prepared in a flask to grow microbes in a large amount for downstream applications. These cultures can either be grown on a shaker for uniform growth, or the flask may be kept in a static incubator to provide the organism with an oxygen gradient.
2. **Agar Plates** : Scientists can grow the bacterial culture in a Petri dish containing a thin layer of agar medium. The agar plates are inoculated with the desired bacteria strain and stored in an incubator overnight at an optimal temperature that is suited for the bacteria's growth. After

optimum growth, the agar plates can be sealed and stored in an inverted manner in the refrigerator for future uses.

3. **Agar-based Dipsticks:** Small versions of agar plates are arranged in a dipstick manner and are used for diagnostic purposes. One of the biggest advantages of this type is that it does not require a laboratory environment or a trained professional.
4. **Stab Cultures:** Stab cultures are a form of agar plates which is made by pouring the agar medium into a test tube and solidifying it. A hole is punctured in the agar, and the medium is inoculated either by a needle or by a pipette. This method is commonly used in shipping cultures or for storing them for a short time.