FREQUENTLY ASKED QUESTIONS (FAQ's)

1. What is a nutrient media? What are its different types?

A nutrient media contains selective or non-selective nutrients which can be used in a semi-solid form (agar) or in a liquid (broth) form. It is specifically used for the growth, storage or transport of bacteria/microorganisms. Nutrient media basically are of two types, nutrient agar and nutrient broth. Agar, a gelling agent, is a solid complex polysaccharide at room temperature, but will melt at temperatures above 85°C. Once liquefied, agar does not re-solidify until it cools to about 42°C. It is used as a gel base to hold moisture and nutrients that enable bacteria to grow.Broth, a liquid growth media containing nutrients which enable microorganisms/bacteria to live, grow and multiply.

2. What is a pure culture? What are the different methods to obtain pure culture?

A pure culture may originate from a single cell or single organism, in which case the cells are genetic clones of one another. Microbial cultures are foundational and basic diagnostic methods used extensively as a research tool in molecular biology. The most common form of microbial cultures are liquid or solid (agar). The different methods to obtain pure cultures are: spread plate method, streak plate method, pour plate method, serial dilution method, single cell isolation methods and enrichment culture method

3. Why is isolation of pure cultures required?

Microorganisms are generally found in nature (air, soil and water) as mixed populations. Even the diseased parts of plants and animals contain a great number of microorganisms, which differ markedly from the microorganisms of other environments. To study the specific role played by a specific microorganism in its environment, one must isolate the same in pure culture. Pure culture involves not only isolation of individual microorganisms from a mixed population, but also the maintenance of such individuals and their progenies in artificial media, where no other microorganisms find way to grow.

4. What is meant by colony morphology? What are the characteristics that describe the morphology of a bacterial colony?

Colony morphology is a method that scientists use to describe the characteristics of an individual colony of bacteria growing on agar in a Petri dish. It can be used to help to identify them. These are the characteristics used to accurately and consistently describe the morphology of a bacterial colony:

Size.

Shape.

Color (also known as pigmentation)

Texture.

Height (a.k.a. elevation)

Edge (a.k.a. margin)

5. Enumerate different methods of isolating pure culture?

The different methods of isolating pure culture are:

1. Spread Plate Method
2. Streak Plate Method
3. Pour Plate Method
4. Serial Dilution Method
5. Single Cell Isolation Methods
6. Enrichment Culture Method

6. How do you define microbial culture?

A microbiological culture, or microbial culture, is a method of multiplying microbial organisms by letting them reproduce in predetermined culture media under controlled laboratory conditions.

7. How can you isolate a pure culture?

Pure cultures are isolated by simply picking out a single individual to initiate a culture. This is a useful technique for pure culture of fungi, multicellular algae, and small metazoa, for example.

Developing pure culture techniques is crucial to the observation of the specimen in question. The most common method to isolate individual cells and produce a pure culture is to prepare a streak plate

8. Briefly discuss Stab culture?

Stab cultures are formed by solid agar in a test tube. Bacteria is introduced via an inoculation needle or a pipette tip being stabbed into the center of the agar. Bacteria grow in the punctured area. [3] Stab cultures are most commonly used for short-term storage or shipment of cultures.

9. Discuss in detail the pour plate method of obtaining pure culture?

This method involves plating of diluted samples mixed with melted agar medium. The main principle is to dilute the inoculum in successive tubes containing liquefied agar medium so as to permit a thorough distribution of bacterial cells within the medium.

Here, the mixed culture of bacteria is diluted directly in tubes containing melted agar medium maintained in the liquid state at a temperature of 42-45°C. The bacteria and the melted medium are mixed well.The contents of each tube are poured into separate Petri plates, allowed to solidify, and then incubated. When bacterial colonies develop, one finds that isolated colonies develop both within the agar medium and on the medium. These isolated colonies are then picked up by inoculation loop and streaked onto another Petri plate to insure purity.

10. What is a Micromanipulator?

A micromanipulator is a device which is used to physically interact with a sample under a microscope, where a level of precision of movement is necessary that cannot be achieved by the unaided human hand.