

# Final-Term Paper. (2020) (MLT 8th Semester)

- **Course Title:**
- **Systematic Diagnostic bacteriology.**
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- **MLT 8th.**

## Q1.

### **Definition**

Media in Microbiology or bacterial cultural media. It contain everything bacteria need to grow out side the body in laboratory conditions.

On other hand selective media is used when only a certain or other type of bacteria is to be grown up...

### **Types of media bacteria ..**

Media are classified in six type of bacteria.

1. **Basal media.**
2. **Enriched media.**
3. **Selective media.**
4. **Indicator media.**
5. **Transport media.**
6. **Storage media.**

### **Basal media.**

- Are those type of media that used for growth culture are bacteria that do not need enrichment of the media

### **Enriched media.**

- Enrichment culture is the use of certain growth media to favor the growth of a particular microorganism over others, enriching a sample for the microorganism of interest. This is generally done by introducing nutrients or environmental conditions

### **Selective media**

- are used for the growth of only selected microorganisms.

### **Indicator media..**

- An indicator is included in the medium. A particular organism causes change in the indicator, e.g. blood, neutral red, tellurite

### **Transport media.**

- Transport media are special media formulated to preserve a specimen and minimize bacterial overgrowth from the time of collection to the time it is received at the laboratory to be processed. Depending on the type of organisms suspected in the sample .

#### **Storage media.**

- Data storage is the recording of information in a storage medium. DNA and RNA, handwriting, phonographic recording, magnetic tape, and optical discs are all examples of storage media.

#### **Preparing of media.**

- The old way to make media was by the cookbook method--- adding every ingredient bit by bit. The only time that is done today is when making a special medium to grow a certain finicky organism, where particular growth factors, nutrients, vitamins, and so on, have to be added in certain amounts.

#### **Q2.**

##### **Cultivation of bacteria.**

- Microbial cultivation are used to determine the type of organism,
- Its abundance in the sample being tested or both .
- A microbial cultivation is a method of multiplying microorganisms by letting them reproduce in predetermined culture media under controlled laboratory condition.

##### **Inoculation Method.**

- Inoculation is a set of methods of artificially inducing immunity against various infectious diseases. The practice originated in the East before being imported to the Western world. The terms inoculation, vaccination, and immunization are often used synonymously, but there are some important differences between them.

#### **Types of Media Used for Inoculation**

- Agar Plates
- Broth Culture
- Slant culture
- Plate culture
- Stab culture

#### **Incubation method.**

- The definition of incubation is the process of keeping something at the right temperature and under the right conditions so it can develop. When a mother bird sits on her eggs until they are ready to hatch, this is an example of incubation.

#### **Q4**

#### **DENGUE**

- Dengue is regarded as the most prevalent and rapidly spreading mosquito-borne viral disease of human beings. Importantly, the past decade has also seen an upsurge in research on dengue virology, pathogenesis, and immunology and in development of antivirals, vaccines, and new vector-control strategies that can positively impact dengue control and prevention.
- In 1906, transmission by the *Aedes* mosquitoes was confirmed, and in 1907 dengue was the second disease (after yellow fever) that was shown to be caused by a virus. Further investigations by John burton and Joseph siler completed the basic understanding of dengue transmission

#### **History**

- The marked spread of dengue during and after the 2<sup>nd</sup> world war has been attributed to ecologic disruption. The same trends also led to the spread of different serotypes of the disease to new areas and the emergence of dengue hemorrhagic fever. This severe form of the disease was first reported in the philiphines in 1953;

#### **Diagnosis**

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- The diagnosis of dengue is typically made clinically, on the basis of reported symptoms and physical examination this applies especially in endemic areas. However, early disease can be difficult to differentiate from other viral infections. A probable diagnosis is based on the findings of fever plus two of the following: nausea and vomiting, rash, generalized pains, low white blood cell count, positive tourniquet test or any warning sign (see table) in someone who lives in an endemic area.

#### **Signs and symptom.**

Worsening abdominal pain

Ongoing vomiting

Liver enlargement

Mucosal bleeding

High hematocrit with low platelets

Lethargy or restlessness

Serosal effusions

## Prevention

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Prevention depends on control of and protection from the bites of the mosquito that transmits it. The World Health Organization recommends an Integrated Vector Control program consisting of five elements:

1. Advocacy, social mobilization and legislation to ensure that public health bodies and communities are strengthened;
2. Collaboration between the health and other sectors (public and private);
3. An integrated approach to disease control to maximize the use of resources;

### Q3

#### **Methods of antibiotic susceptibility test**

There are two type antibiotic susceptibility

- Dilution method
- Disc diffusion method
- Dilution method
- The broth dilution method involve subjecting the isolate to a series of concentration of antimicrobial agents and a broth environment.
- Disc diffusion method
- E – Test
- Automated antimicrobial susceptibility testing system
- Mechanism specific test
- Genotypic method

#### **MEDIA USES**

- It is important to grow microorganism outside the body for the following purposes
- To identify the cause of infection from the clinical sample so that proper treatment can be given

- To study the characteristic or properties of microorganism
- To prepare biological products like vaccine, toxoids, antigen etc.

## **QUALITY CONTROL**

- The term QC cover that part of QA ,which primarily concern the control of error in the performance of test and verification of test results.
- QC must cover all aspects of every procedure within in the department
- The management is responsible for QA AND QC.
- QC is associated with internal activities that ensure diagnostic test accuracy
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PRE ANALYTIC PHASE ::::::::::: ANALYTIC PHASE:::::::::::::POST ANALYTIC PHASE

## **DETEICITION**

- BETA LACTAMASE ENZYMATIC ACTIVITY CAN BE DETECTED USING
- MRSA DETECTION ...
- Doctor diagnose mrsa by checking a tissue sample or nasal secretions for sigs of drug resistance bacteria but because 48 hrs for the bacteria grow .
- If your mrsa test positive your consider colonized with mrsa .
- Many people active infection are treated and no longer have mrsa.’
- Sometime mrsa goes away after treatment and comes back several times you may not get
- Sick or have any more skin infection but you can spread others
- Mrsa is resistance to some antibiotic