***Culture media***

\*\*Components of the typical culture medium:

1-Carbon source

2-Nitrogen source

3-Phosphate source

4-Water source

5-Source of different minerals such as iron, magnesium, sodium,

potassium and trace of zinc and manganese.

Some M.O. may need a source of vitamins and amino acids in the media

because M.O. needs this materials to build components it.

Media classified according to:

**1-Consistency into:**

***A-Liquid media***: These are media that do not contain any percentage of

agar. They are usually used in the extraction of active compounds

produced by M.O. such as toxins.

Ex: nutrient broth, glucose broth

***B-Solid media:*** These are media that contain (1.5-2 )% agar. They are

used for the isolation of M.O. in the form of pure colonies.

Ex: nutrient agar, blood agar

***C- Semisolid media***: These are media that contain less than 1% of agar

about (0.7-0.8)%. This amount of agar is added to the liquid medium so it

becomes gelatinous. These media are used for studying of the bacterial

motility.

Ex: semisolid mannitol agar

***2-According to their nature to:***

***A-Natural media- non-synthetic***, media contain natural material such as:

Milk, blood, meat, potato…..etc.

***B-Artificial media:*** These are divided into:

**1-Synthetic or defined media** (chemically define media).

**2-Semi-synthetic media** by adding meat extract, yeast, peptone to

chemically define media.

**C-Living media**: using chicken embryo, Hela cell, tissues for viruses

***3-According to purpose***:

***1-Selective media*** : antibiotic and chemical such as stain are add to

media for selective growth.

Ex: MacConkey agar, S-S agar, Mannitol salt agar.

***2-Differential media***: to differentiate between different bacteria in the

same group.

Ex: blood agar, MacConkey agar, S-S agar, Mannitol salt agar.

***3- Enrichment media***: for fastidious bacteria.

Ex: Brain heart infusion agar or broth, blood agar

***4- Maintaining media*** :to keep bacteria for long period by adding

glycerol 20% to Brain heart infusion broth or adding tween-80.

***5- Transport media*** : to transport bacteria from one place to another, it

is for one use.

Ex: glycerol saline

***6:Assay media*** :these media are used for performing a particular test

(assay) like the medium that is used for performing antibiotic

sensitivity test.

Ex: Muller-Hinton agar

***7- Stimulalory media*** : these are media that stimulate the production of

certain materials or structures inside the M.O. cell like toxin, pigment

and endospores.

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**Blood Agar**

MacConkey agar contain:

1-Crystal violet which is a dye that inhibits G**+**ve bacteria

2-Bile salt which inhibit non- enteric bacteria

3- Indicator neutral red (pink in acidic media)

4-Lactose sugar (ferment or non ferment)



Mannitol salt agar contain:

1- Mannitol sugar (ferment or non ferment)

2- Indicator Phenol red (yellow in acidic media)

3- salt for growth staphylococcus





**Manitol salt Agar**

***Preparation of culture media***

1- Weightining the medium ingredients according to the

direction written on its container.

2- Dissolve with little amount of D.W. then complete the

volume to the volume you want and may be need using

heating and stirrer for complete dissolving.

3- Check pH .

4- Dispensing the medium in to test tube by pipette.

5-Sterilization by autoclave.

6-Dispensed agar medium into petri dish when the

heat reach to 45.

**EX** : prepare 500 ml of N.A. medium if the direction on

container wrote 8gm/liter

gm ml

8 1000

x 500

x=8 \* 500/1000 = 4 gm of media dissolve in little amount

of D.W. then complete the volume to 500 ml then autoclaved

and poured in plates

***\*\*Method of pouring the media in plateMethod of pouring the te***

The sterile plates should be on the table near the burner then

Cooling the solid medium to 45C˚ to avoid solidify it and to

avoid forming of drop on the cover of plates

Remove the cover (or cotton plug) and sterile the upper part by

burner

Remove the cover of plate near the burner and pouring the

medium and close the cover of plate

Moving the plate on table 5 times in two direction to distribute

the media equally in plate.

***\*\*Sterility test***

This test mean putting the flasks tubes and plates which contain sterile media before using in incubator at 37C for 24 hr. to ensure that there is no contamination while preparing and pouring the media.

***Sterility***