Lab 3 # 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.

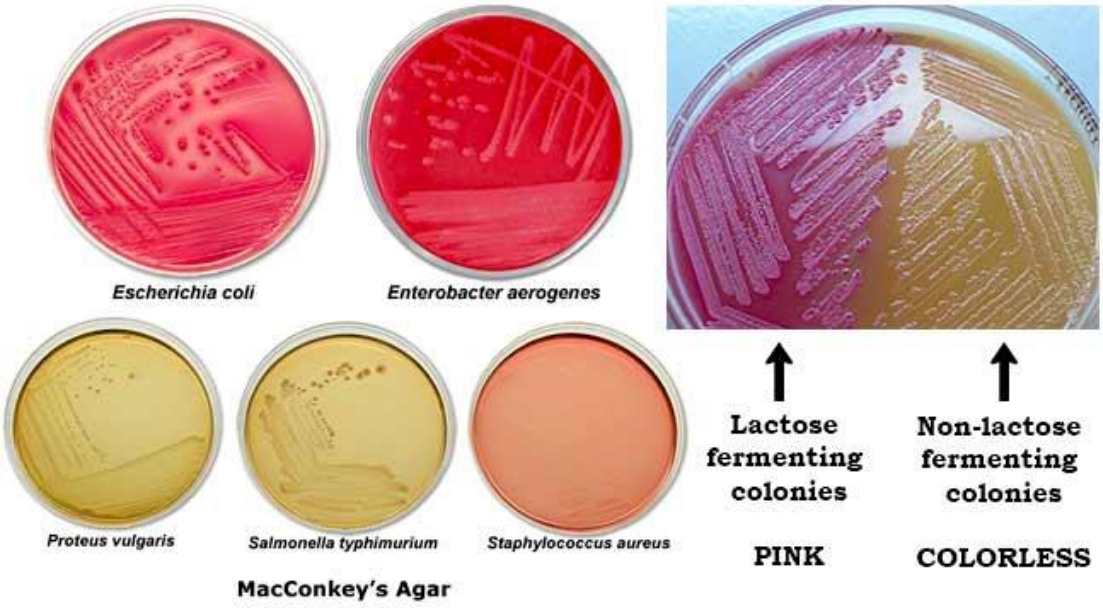
MacConkey agar contain:

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)

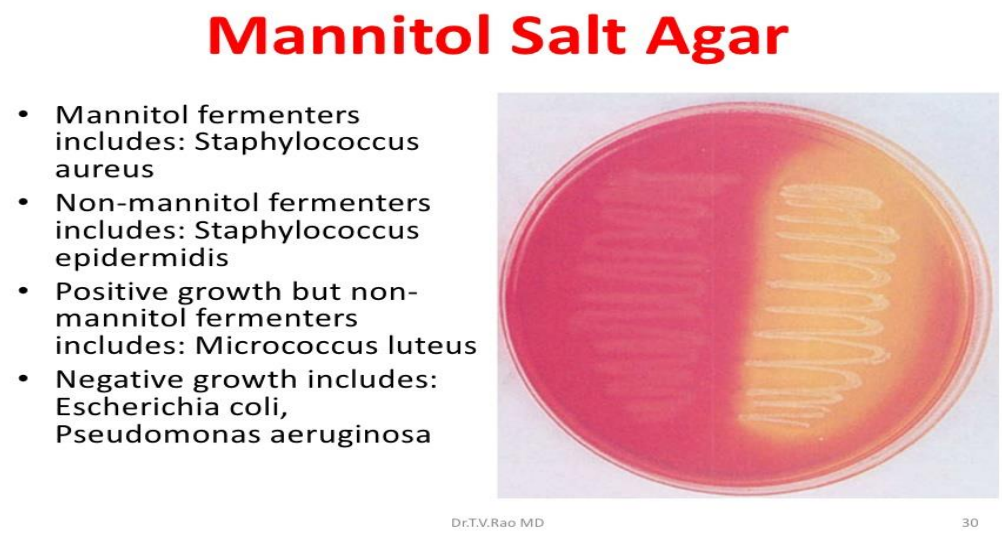


Mannitol salt agar contain:

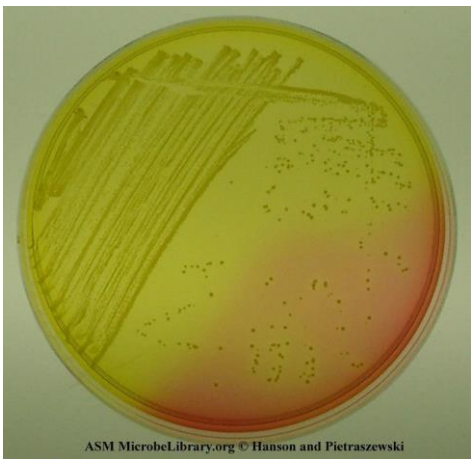
1- Mannitol sugar (ferment or non ferment)

2- Indicator Phenol red (yellow in acidic media)

3- salt for growth staphylococcus



Blood agar



Mannitol salt agar