supervised: berzsu

ENRICHMENT, SELECTIVE AND DIFFERENTIAL CULTURE MEDIA

Cultivation is the process of propagating microorganisms to grow by providing the proper environmental conditions

Omid Tadayoun

ENRICHMENT MEDIA

- Basic principle is to control the nutrients and culture conditions in such a way that it suits mainly to a specific species
  - temperature, air supply, light, pH
- When we assume low amount of potential pathogens being present in the specimen, they have to be enriched first, to multiply up the low number – e.g. serum bouillon, dextrose bouillon, chopped meat bouillon
- Promotes the growth of a particular organism by providing it with the essential nutrients, and rarely contains inhibitory substances to prevent the growth of normal competitors

SELECTIVE MEDIA

- Used for growth of only selected microorganisms. Selection by
  - Adding antibiotics, prevents the growth of other cells
  - Lacking amino acids
  - May contain stains and color indicators (EMB)

SELECTIVE MEDIA

- Eosin-methylene blue agar (EMB)
  - Contains methylene blue, toxic to Gram + bacteria, allowing only the growth of Gram – bacteria
- MacConkey agar (MCK)
  - For Gram – bacteria
- Buffered charcoal yeast extract agar (BCYE)
  - Selective for certain Gram - , for example Legionella.
- Mannitol salt agar (MSA)
  - Selective for Gram + bacteria
- Hektoen enteric agar (HE)
  - Shigella, Salmonella
- Thiosulfate citrate bile sucrose (TCBS)
  - Vibrio cholerae

DIFFERENTIAL MEDIA

- Distinguishes one microorganism type from another growing on the same media on a difference in the colony appearance
  - Color, shape, growth pattern
  - Dyes in the medium, pH indicators
- Eosin-methylene blue agar (EMB)
  - Differential for lactose and sucrose fermentation
- MacConkey agar (MCK)
  - Differential for lactose fermentation
- Mannitol salt agar (MSA)
  - Differential for mannitol fermentation

DIFFERENTIAL MEDIA

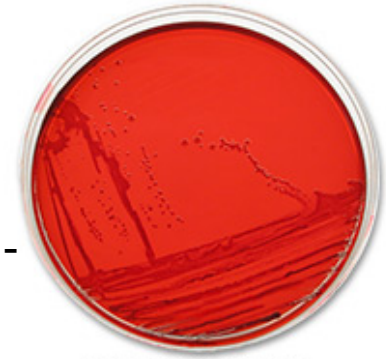
Lactose +

Escherichia coli

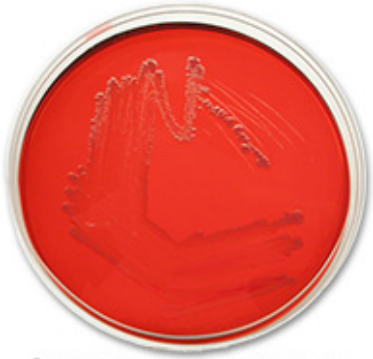
Enterobacter aerogenes

Lactose +

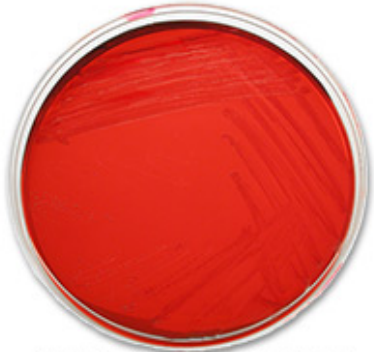
Lactose -



Proteus vulgaris



Salmonella typhimurium



Staphylococcus aureus

No growth
(Gram +)

EMB (Eosin Methylene Blue) Agar