

Lab 5 :Phenotyping Diagnosis of bacteria

A. Morphological examination on conventional media :

The cultivation of the isolates on MacConky agar, or blood agar ,or Manitol salt agar , or cetrimide agar, were used for the primary morphological properties of bacterial growth, including **colonialform**, **size**, **colours**, **smell**, **texture**, **edges**, **hemolysis** .



Figure :Klebsiella pneumoniae on MacConky agar

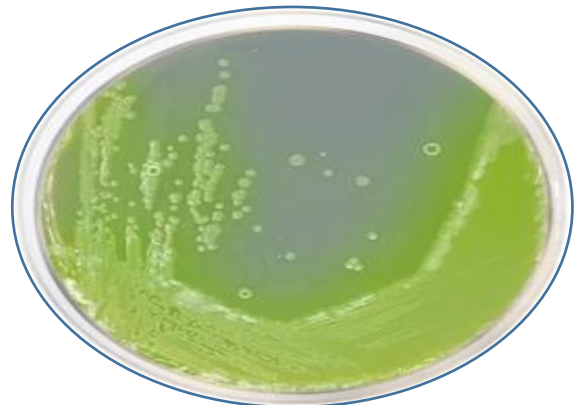


(Poteus mirabilis on Blood agar (Swarming

The term swarming usually refers to a specific type of motion in which rod-shaped flagellated bacteria migrate rapidly on surfaces en masse



Streptococcus agalactiae on granada agar



Pseudomonas aeruginosa on cetrimide agar



Beta Hemolysis

Alpha Hemolysis

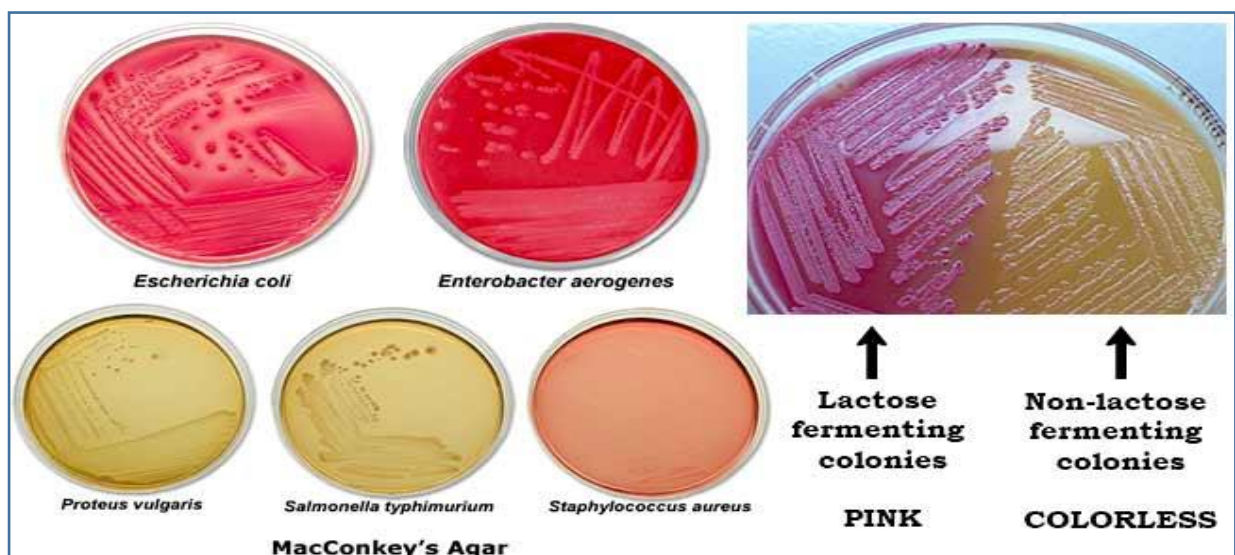
Gamma Hemolysis

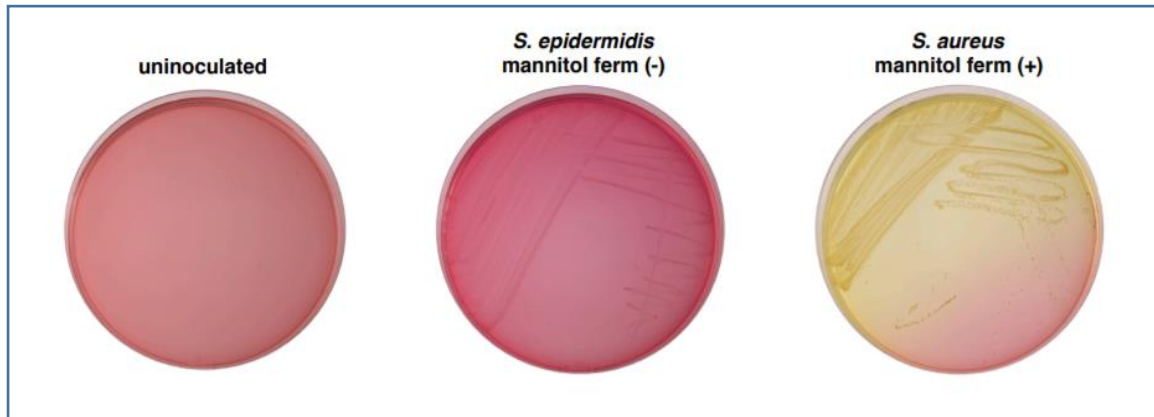
B. Cultivation at different temp.

1-Growth at 42°C , such as *Pseudomonas aeruginosa*.

2- Growth at 44°C , such as *Acinetobacter baumannii*.

The ability to produce acidic metabolic products, fermentatively or oxidatively, from a range of carbohydrates (eg, glucose, sucrose, manitol and lactose) has been applied to the identification of most groups of bacteria (eg, *Escherichia* spp. ferment lactose, whereas *Salmonella* spp. do not) , (eg, *Staphylococcus aureus* ferment manitol, whereas *staphylococcus epidermidis* do not). Such tests are crude and imperfect in defining mechanisms but have proved useful for taxonomic purposes. More recently, gas chromatographic identification of specific short-chain fatty acids produced by fermentation of glucose has proved useful in classifying many anaerobic bacteria.

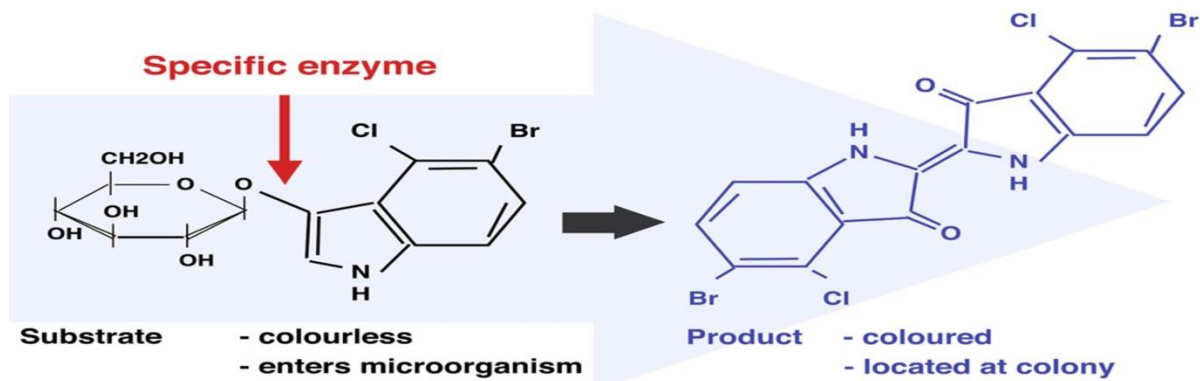


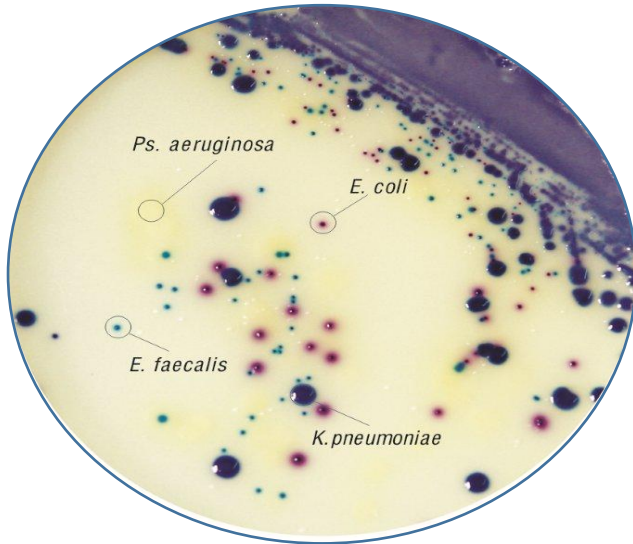


C- Morphological examination on modern media (Chromogenic Technology)

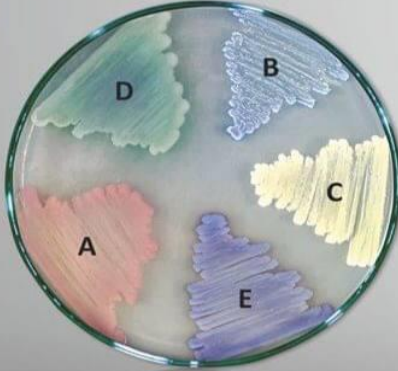
This technology is based on soluble colourless molecules (called chromogens), composed of a substrate (targeting a specific enzymatic activity) and a chromophore. When the target organism's enzyme cleaves the colourless chromogenic conjugate, the chromophore is released. In its unconjugated form, the chromophore exhibits its distinctive colour and, due to reduced solubility, forms a precipitate.

Mechanism Enzymatic chromogenic substrates





TM 1199
CHROMOGENIC UTI AGAR



SYMBOL	CULTURE NAME	ATCC	APPEARANCE OF COLONY
A	<i>Escherichia coli</i>	25922	Pink- Purple
B	<i>Enterococcus faecalis</i>	29212	Blue
C	<i>Staphylococcus aureus</i>	25923	Cream yellow
D	<i>Pseudomonas aeruginosa</i>	27853	Colourless (greenish pigment may be observed)
E	<i>Klebsiella pneumoniae</i>	13883	Bluish Purple