

Enterobacteriaceae
Escherichia coli

Morphology and staining :-

- 1-Gram –ve rod.
- 2-Motile.
- 3-Posses capsule (mucoid).
- 4-Non-spore forming.

Cultural characteristics :-

The important media used for growth is :

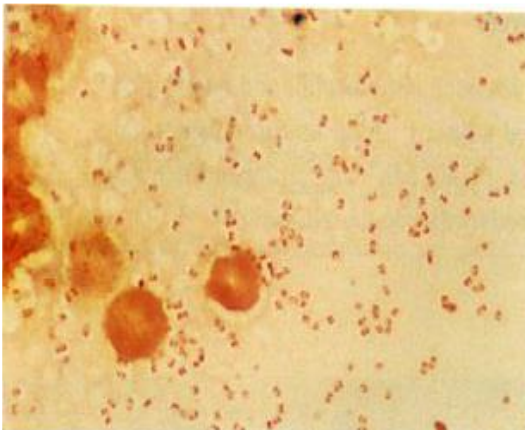
- 1-**Blood agar** :- the colonies are grey color .
- 2-**MacConkey's agar** :- the colonies are pink color (selective media).
- 3-**Eosin methylene blue** :- the colonies are metallic sheen color (selective media).

Biochemical tests (IMVC,HUM) :-

Species	Methyl-red	Indole	Voges-proskauer	Citrate	H2S	Urease	Motility
<i>E.coli</i>	+	+	-	-	-	-	-

Diagnosis :-

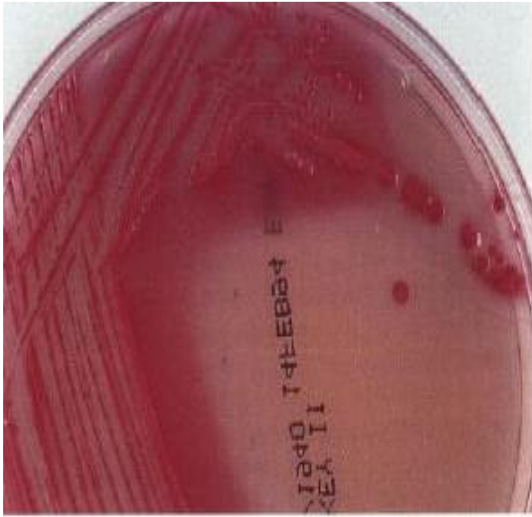
- 1-Isolation of the bacteria from (fecal, intestinal, internal viscera) and culturing on the blood agar, MacConkey's agar and Eosin methylene blue.
- 2-Biochemical tests :-



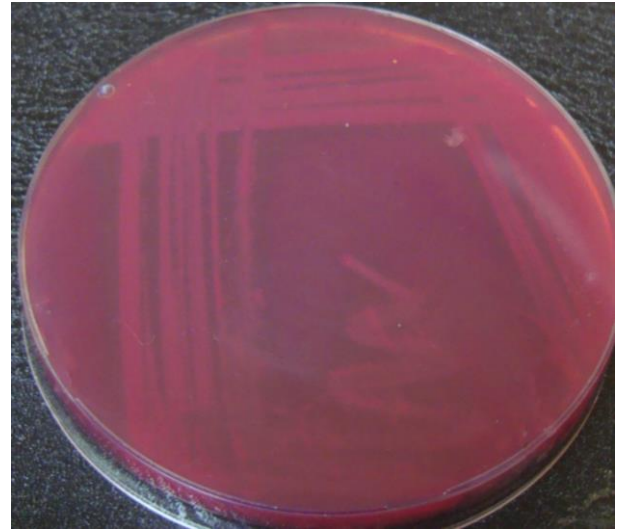
Gram –ve rod.



Colonies of E.coli on 5% blood agar



Colonies of E.coli on MaCconkeys agar



Colonies of E.coli on MaCconkeys agar

Klebsiella pneumoniae

Morphology and staining :-

- 1-Gram ve- .
- 2-rod(thick short rods). .
- 3-it has round ends, arranged as diplobacilli. .
- 4- non-spore forming ,non-motile and posses capsule.

Cultural characteristics :-

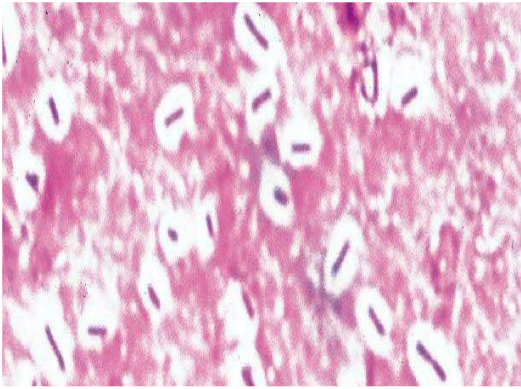
- 1-MacConkey's agar :- the colonies are brown color.

Biochemical tests :-

Species	Indole	Methyle red	Voges proskauer	Citrate	H2S	Urease	Motility
<i>Kleb. Pneumonia</i>	-	-	+	+	-	+	-

Diagnosis :-

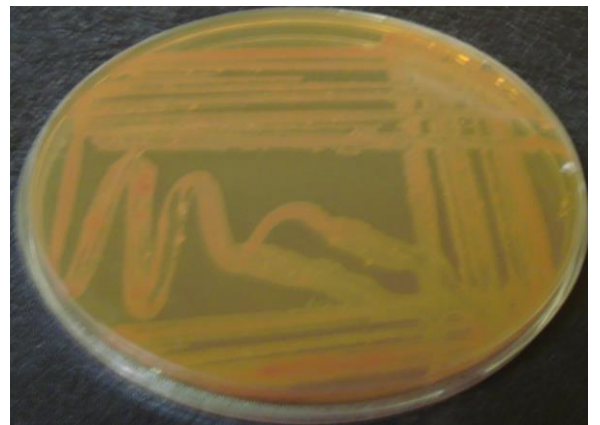
- 1-Isolation of the bacteria on the MacConkey's agar from lesion and specimens
- 2-Negative staining :- inorder to see the capsule



Gram ve-thick short Rods.



Klebsiella pneumoniae on MacConkey agar



Klebsiella pneumoniae on MacConkey agar

Salmonella

Species :-

Salmonella pullorum

Salmonella gallinarum

Salmonella thyphimurium

Salmonella dublin

Salmonella abortusequi

Salmonella abortusbobis

Salmonella abortusovis

Morphology and staining :-

1-Gram-ve

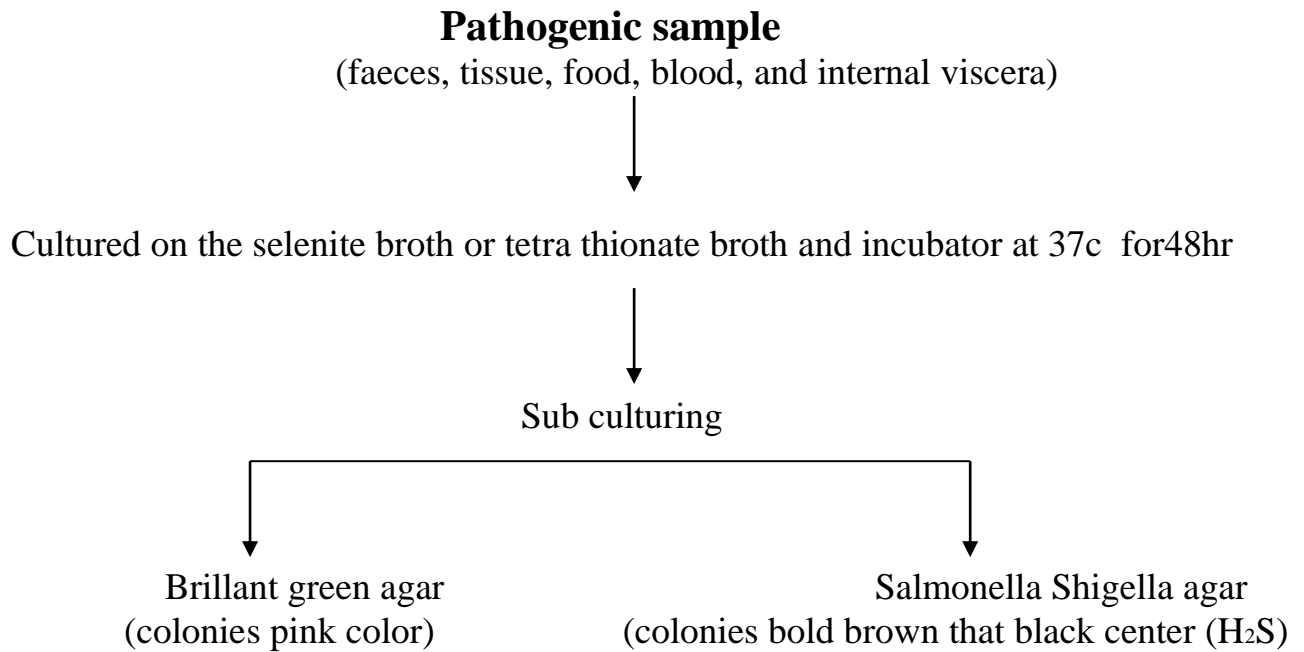
2-Rod (short or long rod) or coccobacilli

3-Non-spore forming

4-Some types posses capsule

5-Motile except *Salmonella pullorum* and *Salmonella gallinarum*.

Cultural characteristics :-



Biochemical test :-

Species	Indole	Methyl red	Voges proskauer	Citrate	H ₂ S	Urease	Motility
<i>Salmonella</i>	-	+	-	+	+	-	+

Diagnosis :-

- 1-The Culture pathogenic samples (food,blood,faeces and internal viscera) on the selective broth and subculturing on the selective media of the salmonella .
- 2-Biochemical test.

Proteus

Species :-

- 1- Proteus vulgaris
- 2- Proteus mirabilis
- 3- Proteus rettgeri

Morphology and staining :-

- 1- Gram-ve
- 2- rods sometimes pleomorphic cocci rods or filamentous
- 3- motile
- 4- non-spore forming
- 5- non-capsulated

Cultural characteristics :-

- 1- on blood agar and nutrient agar / the swarming phenomena can be seen on it (thin layer of swarming on the surface of media from seawaves).

2- Biochemical test :-

Species	Indole	Methyle red	Voges-proskauer	Citrate	H ₂ S	Urease	Motility
<u>Proteus mirabilis</u>	-	+	-	+	+	+	+
<u>Proteus vulgaris</u>	+	+	-	+	+	+	+

Diagnosis :-

- 1- Specimens culturing / blood, faeces and internal viscera) on the blood agar and nutrient agar to see the swarming phenomena
- 2- Biochemical test /