

FAMILY: ENTEROBACTERIACEAE

General character:

Morphology:

- 1- Gram negative bacilli & non spore forming.
- 2- Short to medium size bacilli
- 3- Member of this family usually motile
 - Some strain non motile (*Salmonella pollorum* , *S. gallinarum*).
 - Motility due to presence of peritrichous flagella
- 4- Some species are capsulated as... (*Enterobacter – klebsiella pneumonia* – *Yersinia enterocolitica*) developed capsule producing mucoid colony on sugar containing media)
- 5- Arrangement is single or pairs.
- 6- They found mainly in the intestinal tract of man or animal either as normal non pathogenic as ... (*E.coli* , *Proteus spp.* , *Morganella*). Found in the intestine as pathogenic incase of *Salmonella* cause enteric typhoid fever and as *Shigella* produce sever gastroenteritis

Culture character:

- 1- Facultative anaerobic on simple laboratory media (ordinary nutrient media).
- 2- Grow at 37°C .
- 3- Selective media (MacConkey): **lactose fermenter** (give pink color as in *Escherichia coli* , *Klebsiella* , *Enterobacter* → coliform bacteria. Other are **non lactose fermenter** (give white color) → *Salmonella* , *Shigella* , *Proteus*

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Coliform bacteria: member of F. *Enterobacteraceae* that ferment lactose.



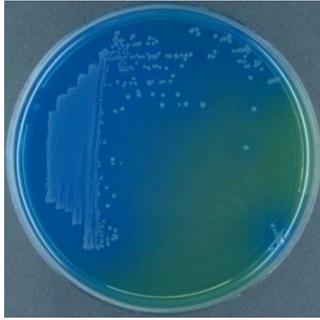
Biochemical test:

- 1- All of them ferment dextrose or glucose give acid & gases after fermentation (aerogenic)
- 2-Oxidase test -ve
- 3- a lot of genera within the family are differentiated by their biochemical character, Specially **IMViC** test (indol , methyl red , vogus prauskeur , citrate utilization)
- 4- Reduce nitrate to nitrite

Media use for isolation of *Enterobacteraceae*:-

- 1- Non-inhibitory & non-differential media as Nutrient agar
- 2- Non-inhibitory but differential media as .. bromothymol blue lactose agar media

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3- Differential inhibitory selective media as

- MacConkey bile salt lactose agar media.
- Haekton enteric agar media
- Liefson desoxy media
- Xylose lysine desoxycholate agar media (XLD media)

Shigella

○ **Disease:**

Bacillary dysentery.

○ **Morphology:**

Gram (-) bacilli, non motile and non capsulated.

○ **Culture character:**

They produce non lactose fermenting colonies on **MacConkey** medium and pink colonies on **XLD**.

○ **Biochemical reaction:**

- Some ferment glucose only with production of acid e.g. *Shigella*.
Dysenteriae.
- Other ferment glucose and mannite with acid e.g. *Shigella*.
flexneri, *Shigella. boydii* and *Shigella. sonnei*.

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Bacillary dysentery:

Cause the most sever abdominal pain, fever, diarrhea with pus, blood and mucous in stool.

Infection leads to local ulcers in the intestine but no blood invasion.

○ Diagnosis:

- ❖ Direct microscopical examination.
- ❖ Culture character.

Biochemical reaction as salmonella.