

Second stage – LAB.12

Proteus, Providencia, and Morganella Group

Members of these genera are agents of urinary tract and other extra intestinal infections. This group deaminate phenylalanine, are motile, grow on potassium cyanide medium (KCN), and ferment xylose. *Proteus* species and *Morganella morganii* are urease-positive, while *Providencia* species usually are urease-negative. The proteus-providencia group ferments lactose very slowly or not at all.

Lab diagnostic tests:

1- Gram stain : G-ve bacilli or coccobacilli.

2- MacConkey agar : Selective & Differential

Selective : -Crystal violet (inhibit G+ve)

-Bile salt (inhibit G-ve other than enterobacteriaceae).

Differential: differentiate between lactose fermentor (pink colony) and non fermentor lactose (pale colony).

Indicator neutral red : - yellow in alkaline Ph.

- pink in acid ph.

3- EMB (Eosin Methylene blue) : Selective and Differential

- **Selective** for enterobacteriaceae *Methylene blue (inhibit G+ve)

-**Differential** for *E.coli* (green metallic sheen)

Lactose fermentation lead to alcohol + Eosin that lead to metallic sheen.

4-TSI (Triple Sugar Iron agar):

Contain glucose 1%, sucrose and lactose 10%, phenol red indicator used for sugar fermentation, H₂S production.

Result: Yellow.....acidic, pinkish.....alkaline, gas.....bubbles if fermentation occur (CO₂), FeS..... (Black precipitate).