PRACTICAL MEDICAL BACTERIOLOGY

Lab 2

Isolation and identification of normal flora from different body sites

Normal flora:

- *Normal Flora "indigenous micrbiota" denotes the population of microorganisms (mostly bacteria) that inhabit the skin and mucous membranes of healthy normal persons.*

Why should we know about normal flora?

We all should know about the types and distribution of normal flora in our bodies ***because:***

1.It gives us better understanding of the possible infections that result from injury to a specific body site.

2.As well as the possible sources and significance of microorganisms isolated from the site of an infection.

Type of normal flora

*1) **Resident microbiota** consists of relatively **fixed** types of microorganisms regularly found in a given area at a given age; if disturbed, it promptly reestablishes itself, like E.coli in intestine.*

*2) **Transient microbiota** are unable to colonize the body for longer periods They can be removed from the body surface by mechanical means like Pneumococcus and Meningococcus can be removed from nasopharynx of the human beings from time to time*

Where can we found normal flora?

They are found in sites exposed to the environment.

- *Skin*
- *Conjunctiva*
- *Oral cavity*
- *Upper Respiratory Tract*
- *Gastrointestinal Tract*
- *Urogenital Tract*

Beneficial effects of normal flora

*1.**Protect** our organs and systems that are in direct contact with the external environment from invading pathogens. Some normal flora **produce substances** that kills pathogens and others **compete** for with them for nutrients.*

*2.In **newborns**, normal flora stimulates the development of **immune system**.*

*3.Normal flora of the **gut** provides important nutrients such as **Vitamin K.***

Harmful effect of normal flora

*1.When the normal flora are **displaced** from their normal site of the body **e.g.** bloodstream infections by **S. epidermidis**.*

*2.When potential pathogens gain a competitive advantage due to diminished populations of harmless competitors **e.g. C. difficile** growing in the gut after antibiotic therapy.*

*3.When harmless, commonly ingested food substances are converted into carcinogenic derivatives by bacteria in the colon **e.g.** sweetener cyclamate.*

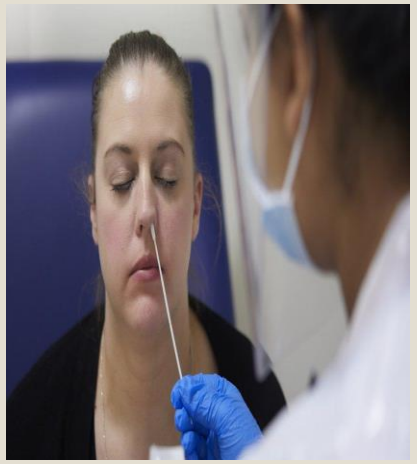
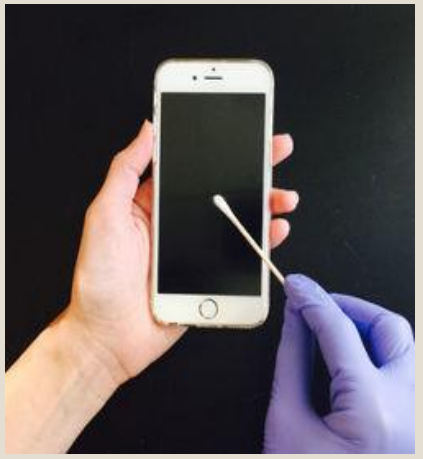
*4.When individuals are **immunocompromised**, normal flora can overgrow and become pathogenic.*

Laboratory Diagnosis

- ***Specimens:*** *Swab depending on location e.g. skin swab, ear swab, nasal swab, pharyngeal swab and swab from mobile surfaces.*

  Moisten the cotton swab by sterile normal saline and take the sample from the following

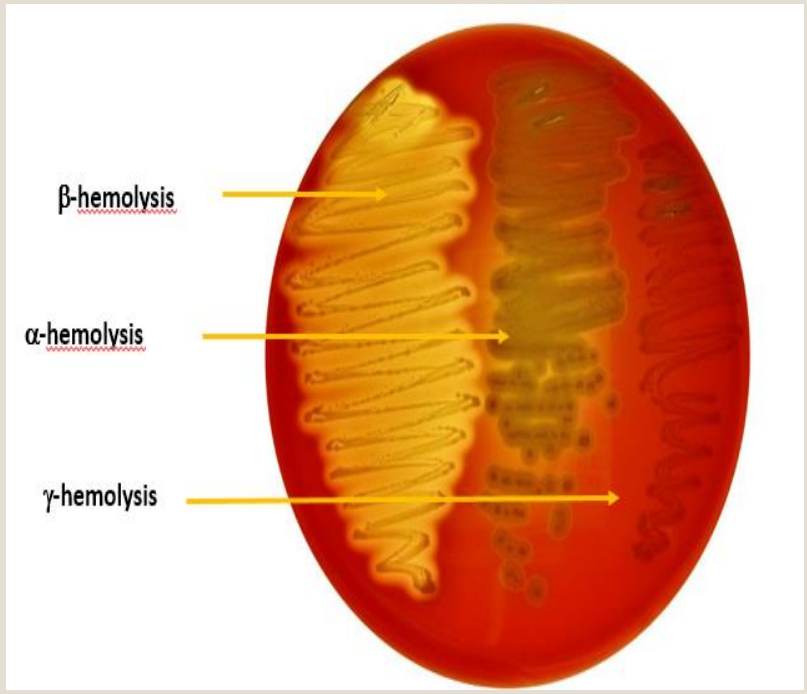


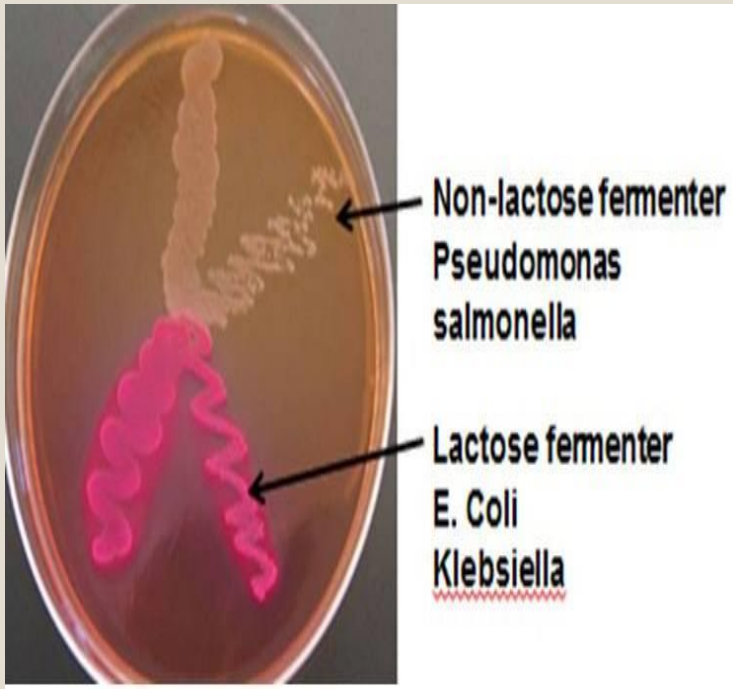




➢*Isolation and identification*

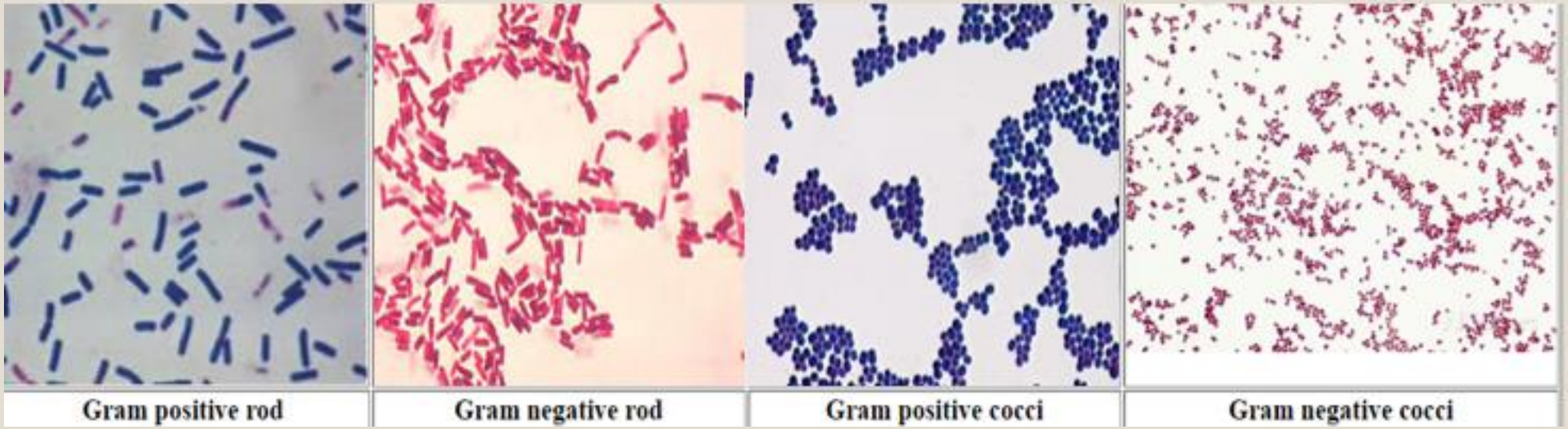
➢*Culture on blood agar, MacConkey agar, and mannitol salt agar by spreading the swab then streaking to obtain well separated colonies.*

➢*Incubate at 37C^{o} for 24 hours if there is growth, then describe colony morphology (refer to lecture of 2nd year study) on different inoculated media.*

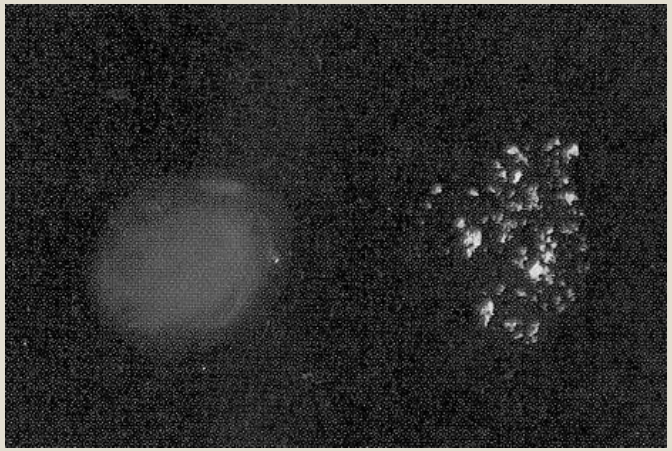




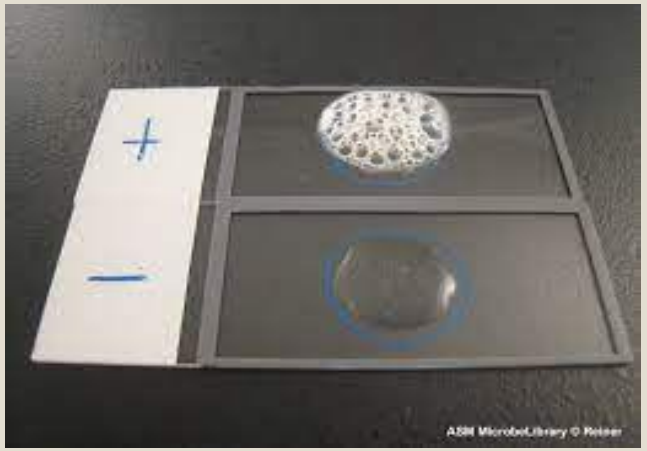
- *Make Gram stain and describe bacterial morphology*



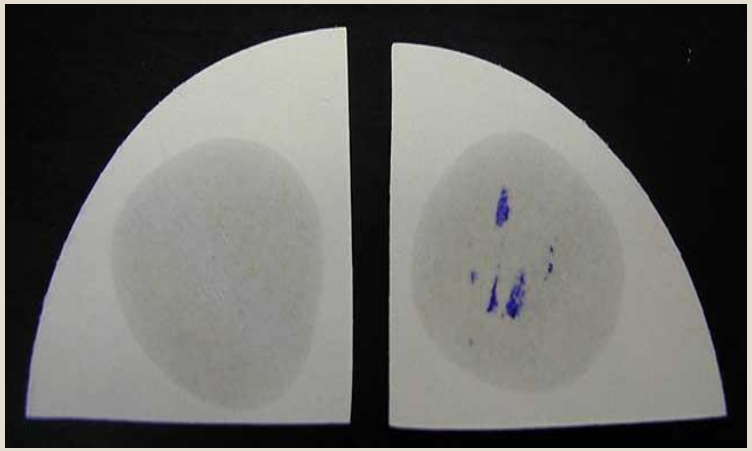
- *Do biochemical tests according to the type of isolated bacteria.*



Coagulase test



Catalase test



Oxidase test

- *Mention the biochemical tests that you need for identification*

- *Write your report based on the provided template*