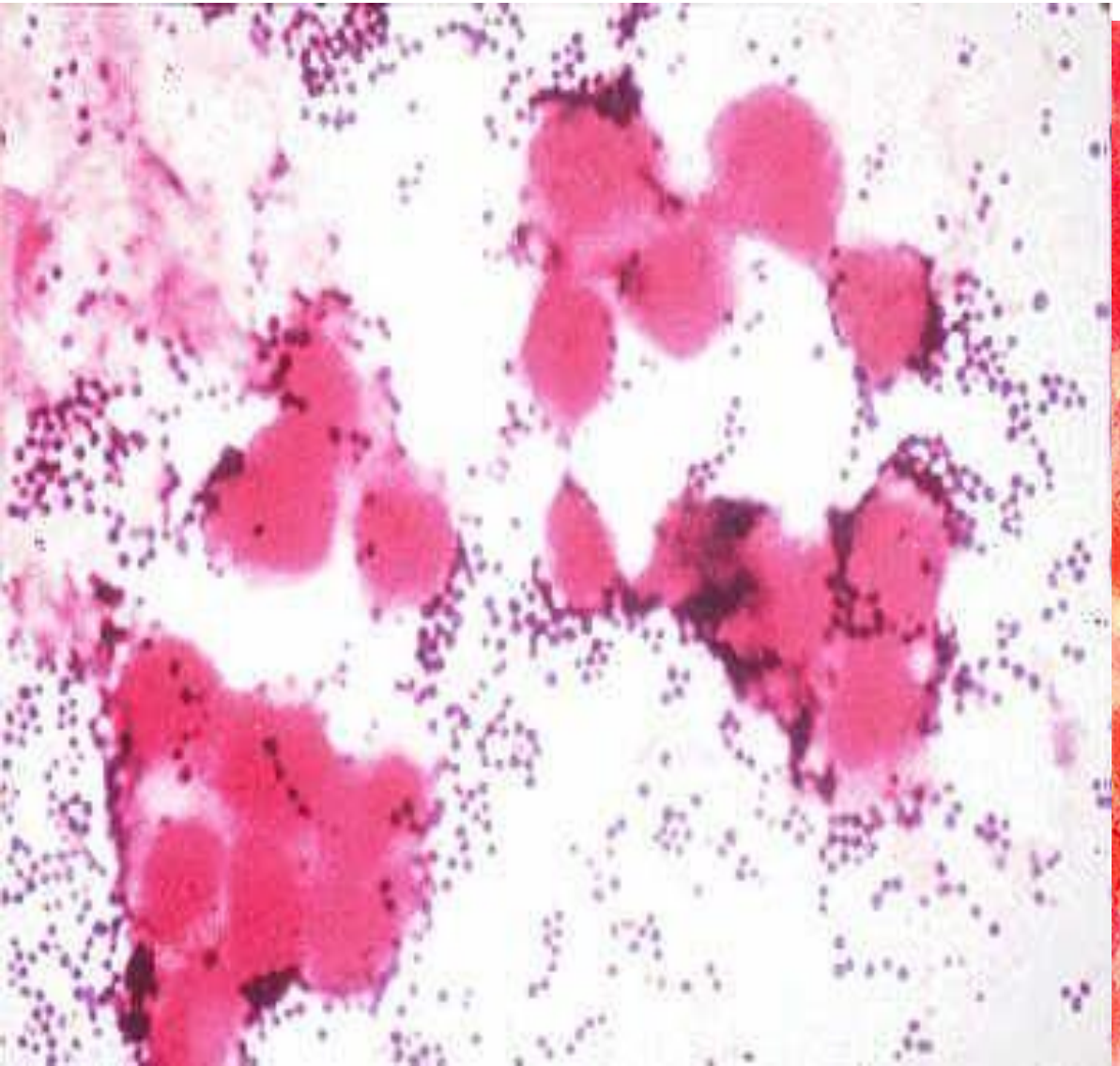
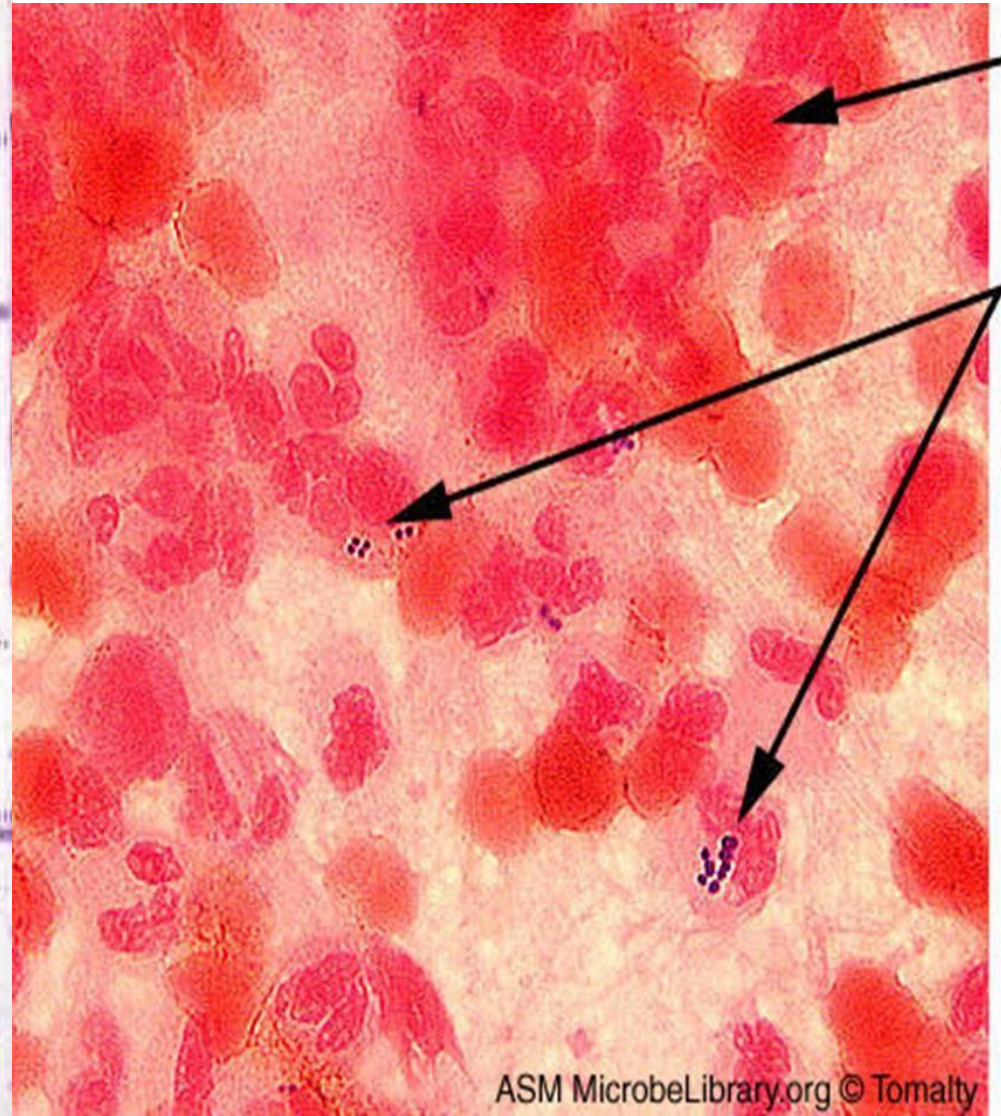
CVS

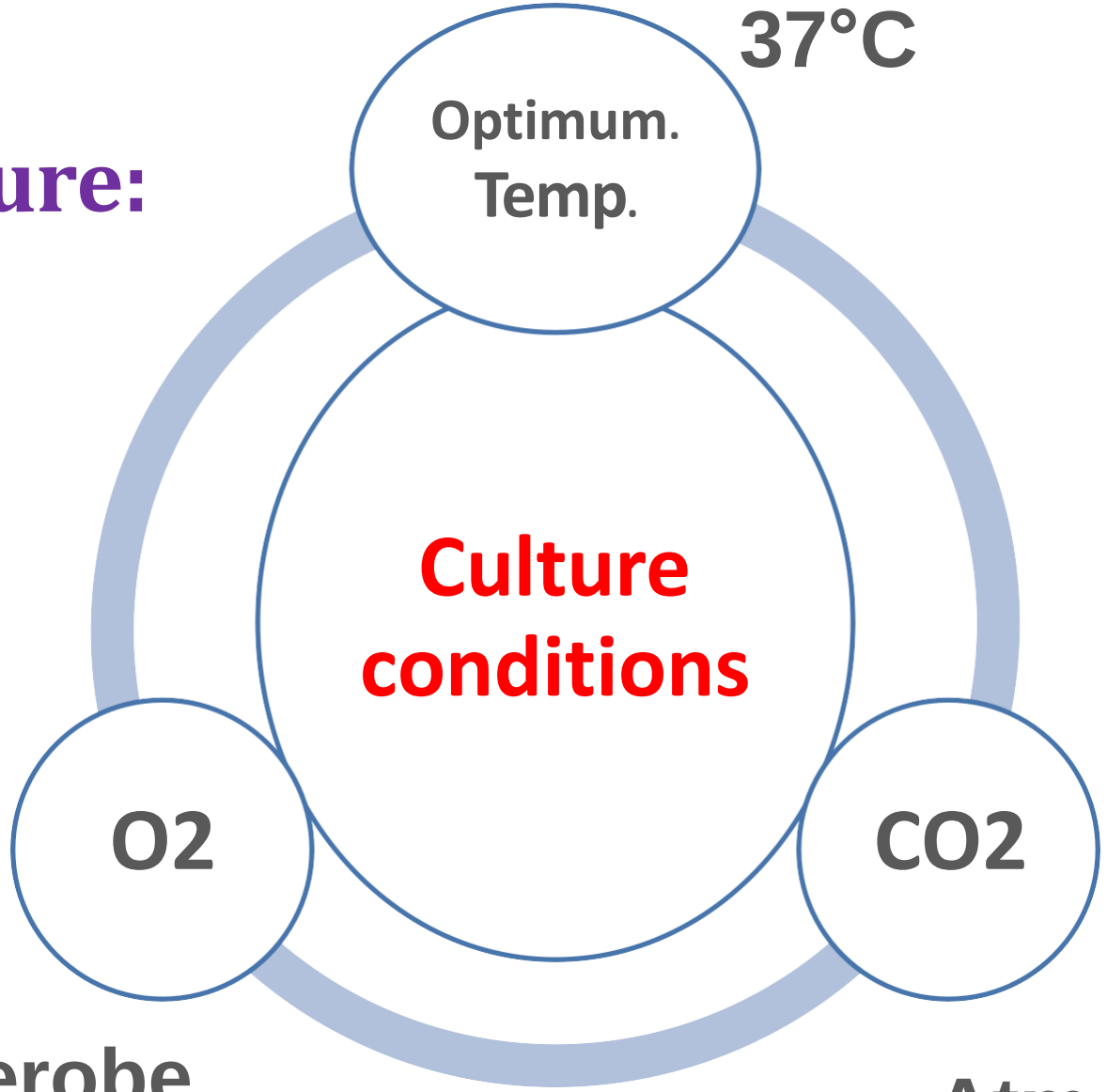
2- Direct film: from the sample

Gram stain of Staphylococcus aureus in pus





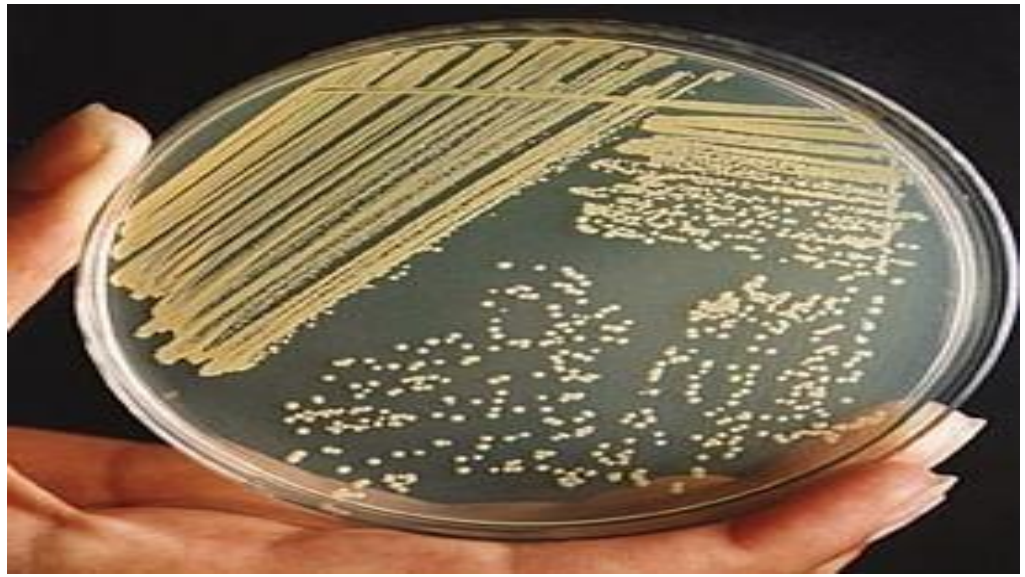
3- Culture:


37°C
Optimum.
Temp.
Culture
conditions
O2
CO2
F. anaerobe
Atmospheric

Media

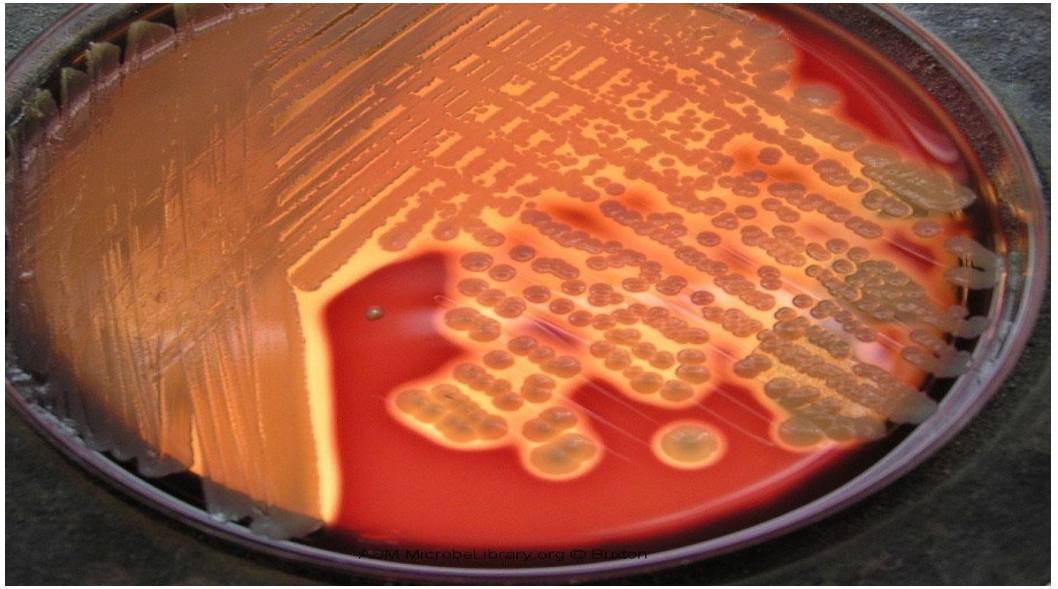
Ordinary media

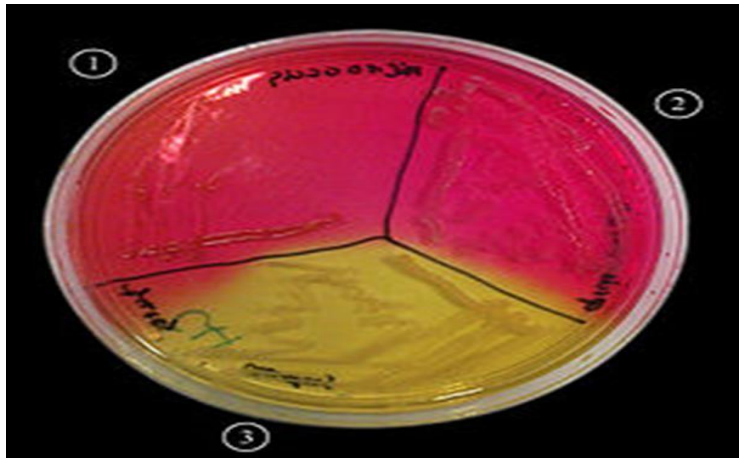
S. aureus → Golden yellow endopigment



Enriched media (Blood agar)

S. aureus → β Hemolysis

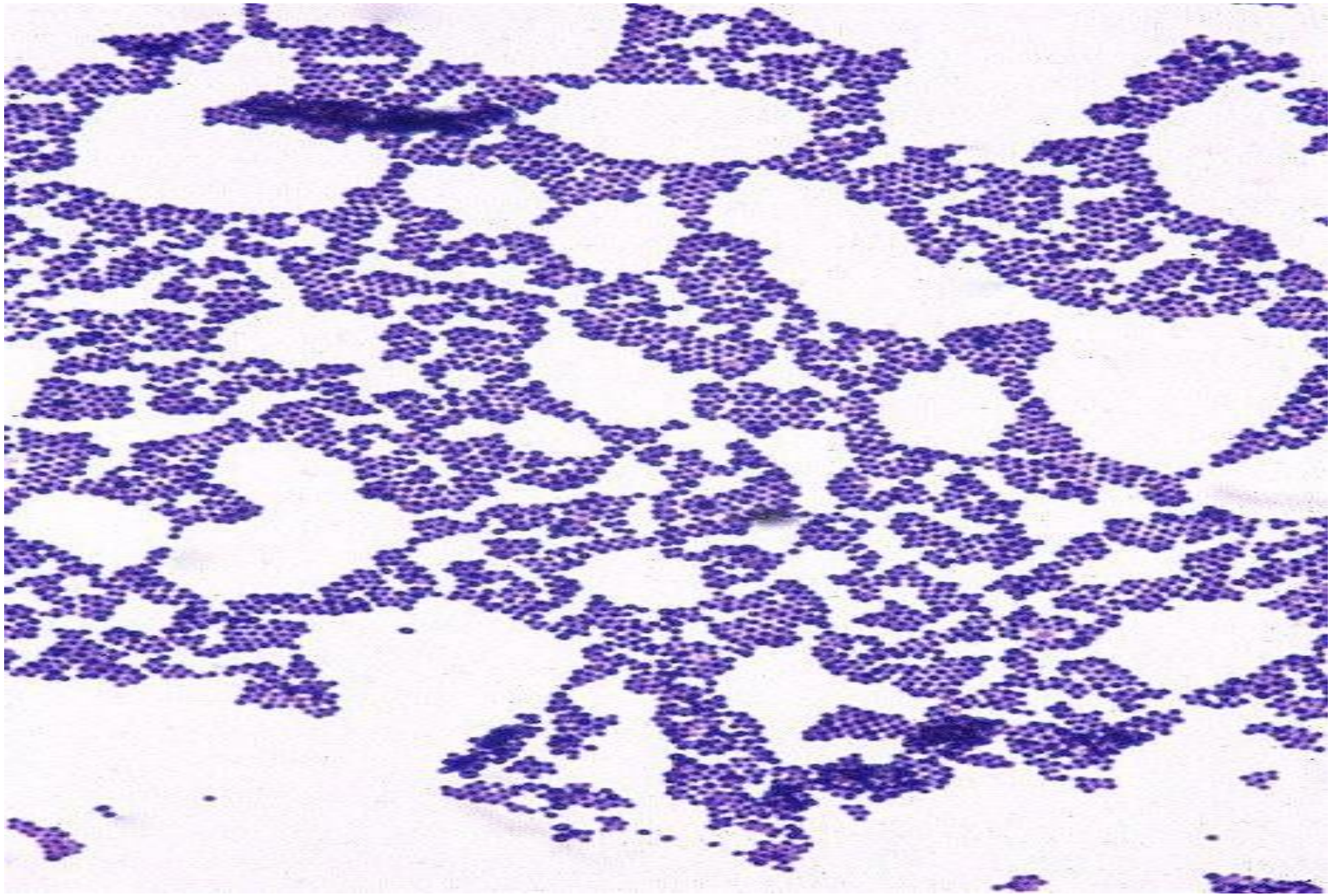




Selective media:
Mannitol salt agar

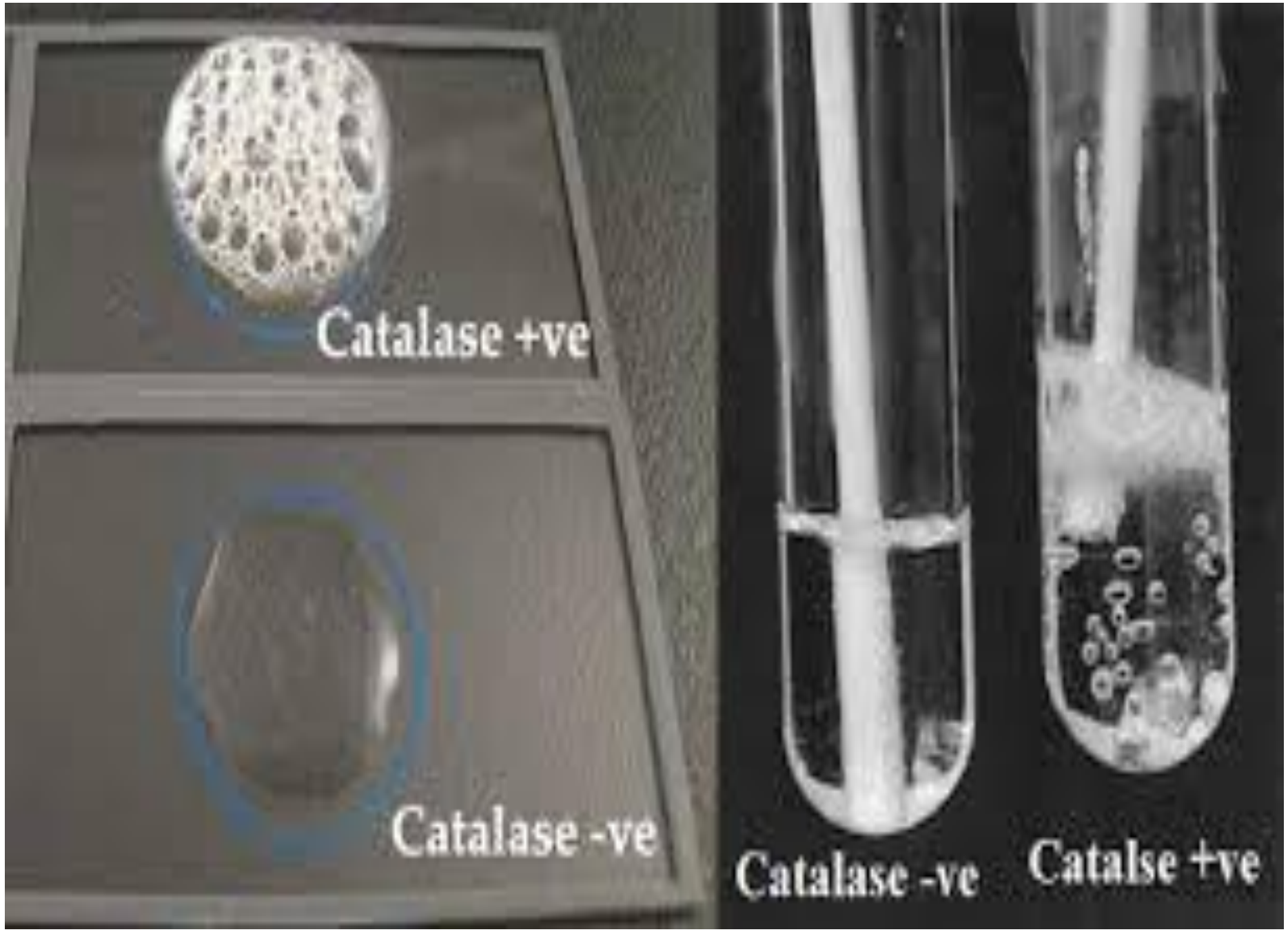
(S. aureus → ferment Mannitol → yellow

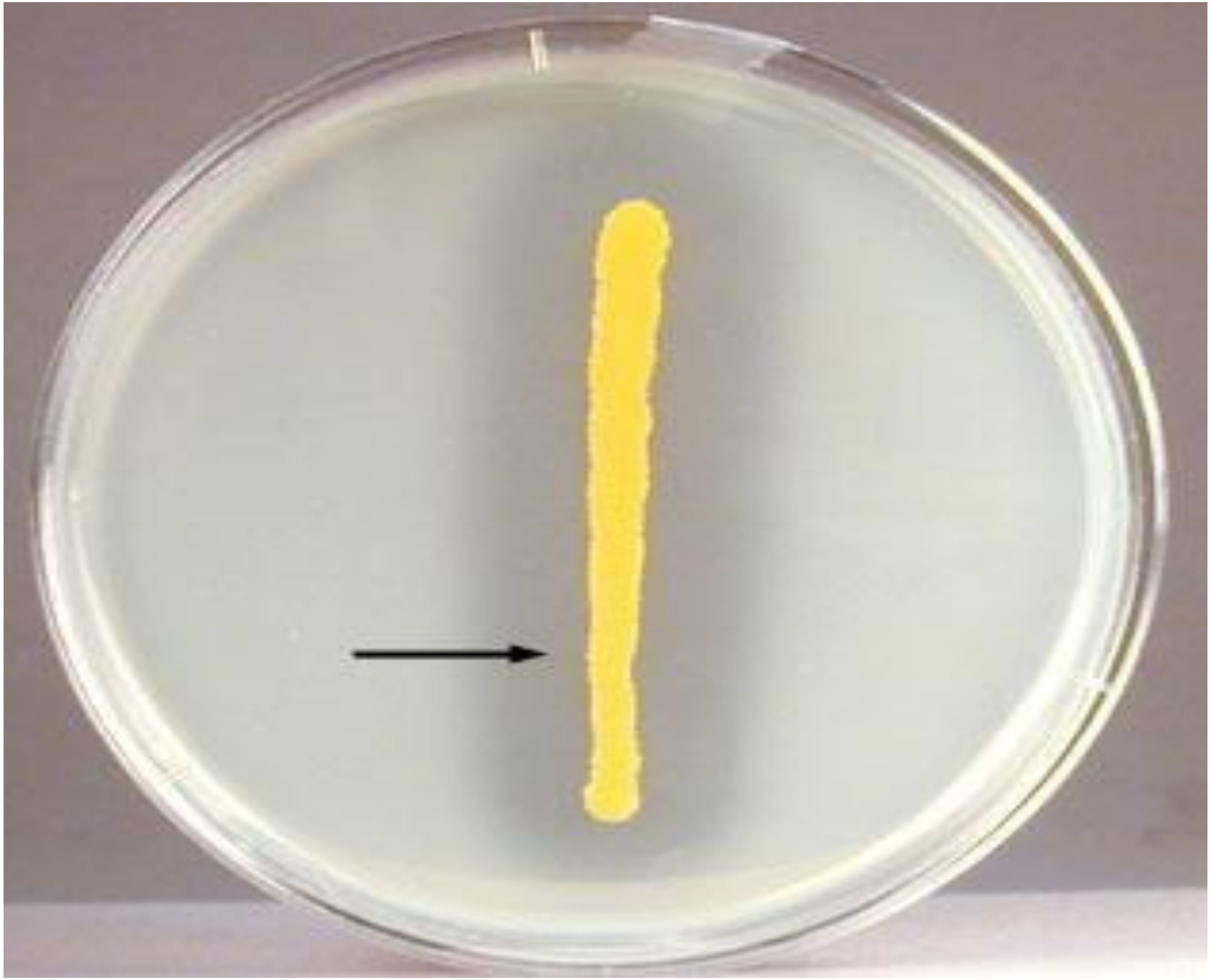
Gram stained: morphology



Gram positive cocci arranged in clusters

Catalase test:


Catalase +ve
Catalase -ve
Catalase -ve
Catalse +ve



DNase positive in staph aureus

breakdown of the DNA in the agar. There is a clear zone (arrow) around the bacterial growth where there is no longer any DNA left in the agar to precipitate after the HCl was added.

Respiratory

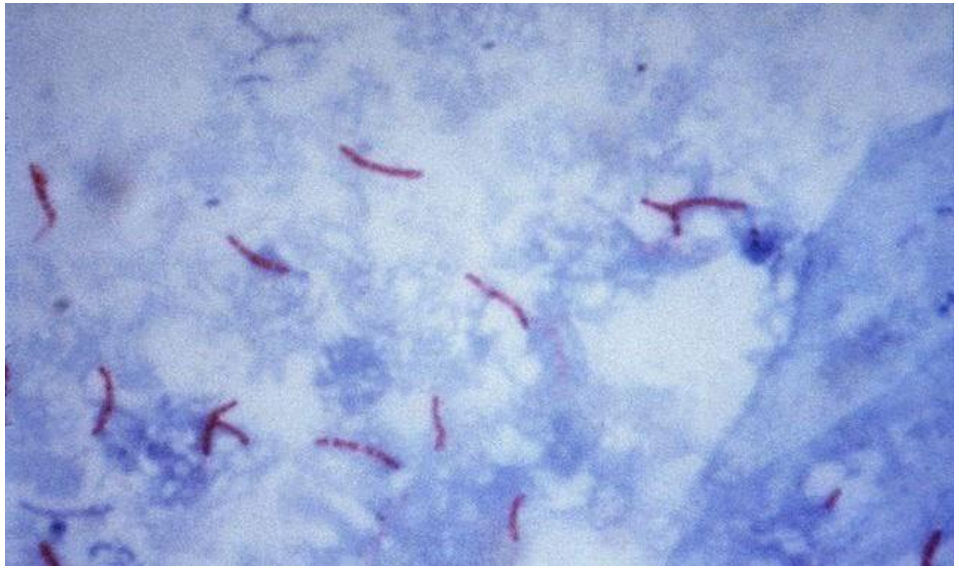
Lab diagnosis of pulmonary tuberculosis

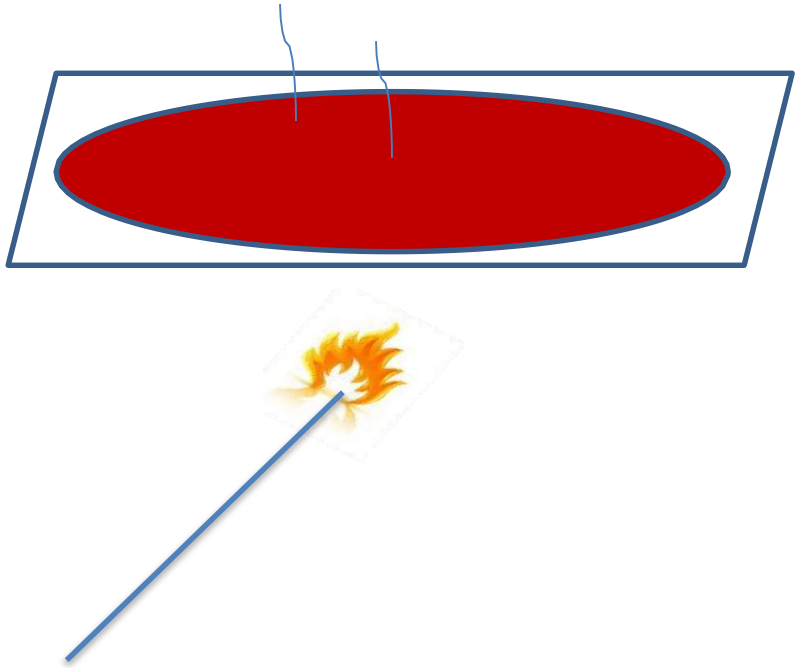
- **1- Sample: ?**
- Sputum, bronchial or gastric washings.
- At least **3 morning** samples of sputum are required for diagnosis.

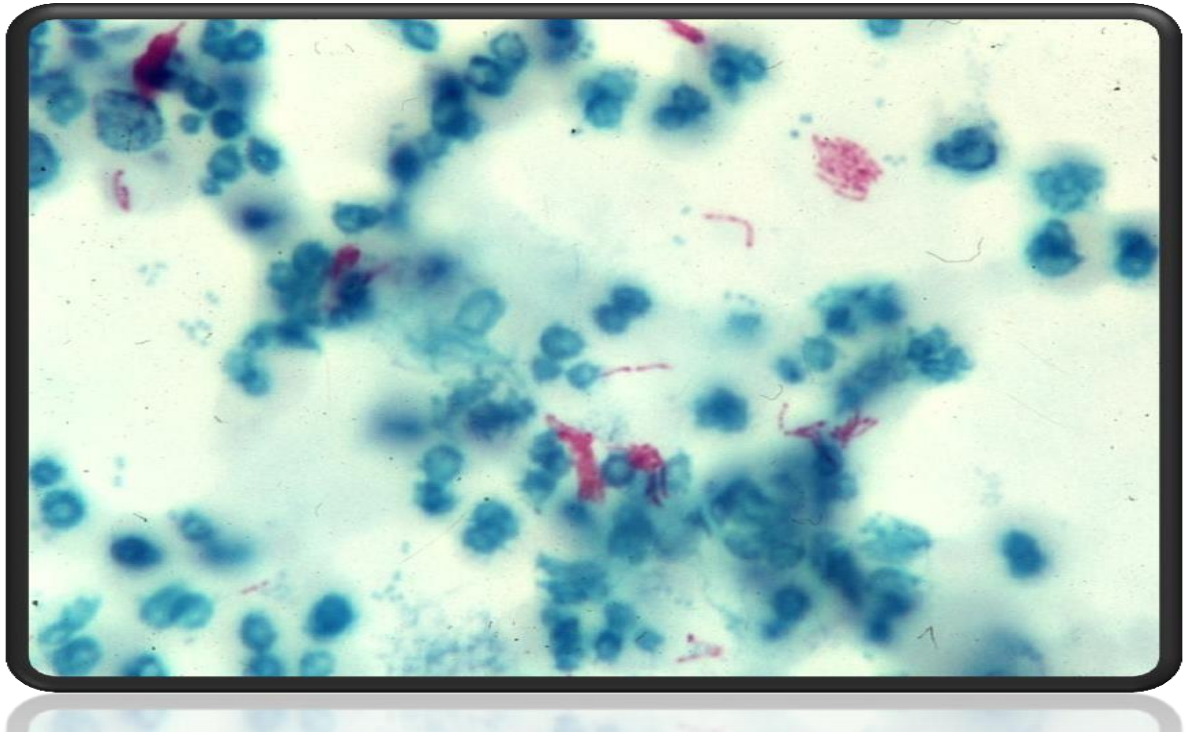
2- Direct film ‘smear’:

Z.N. stain

(after liquefaction→ by N-acetyl L-cystein)



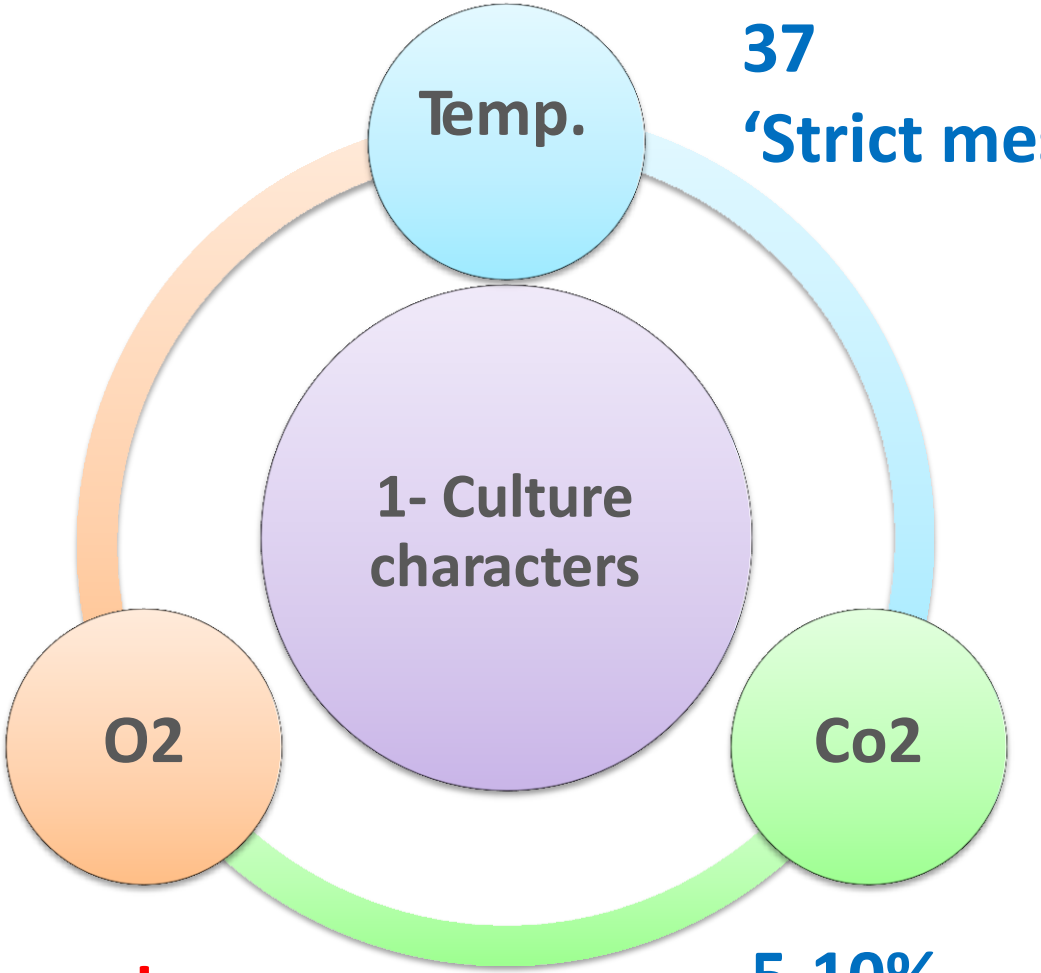




Requirements

- Concentrated carbol fuchsin.
- Sulphuric acid 20%.
- Alcohol 95 %.
- Methylene blue.

3- Culture: (after decontamination; NaOH)



37

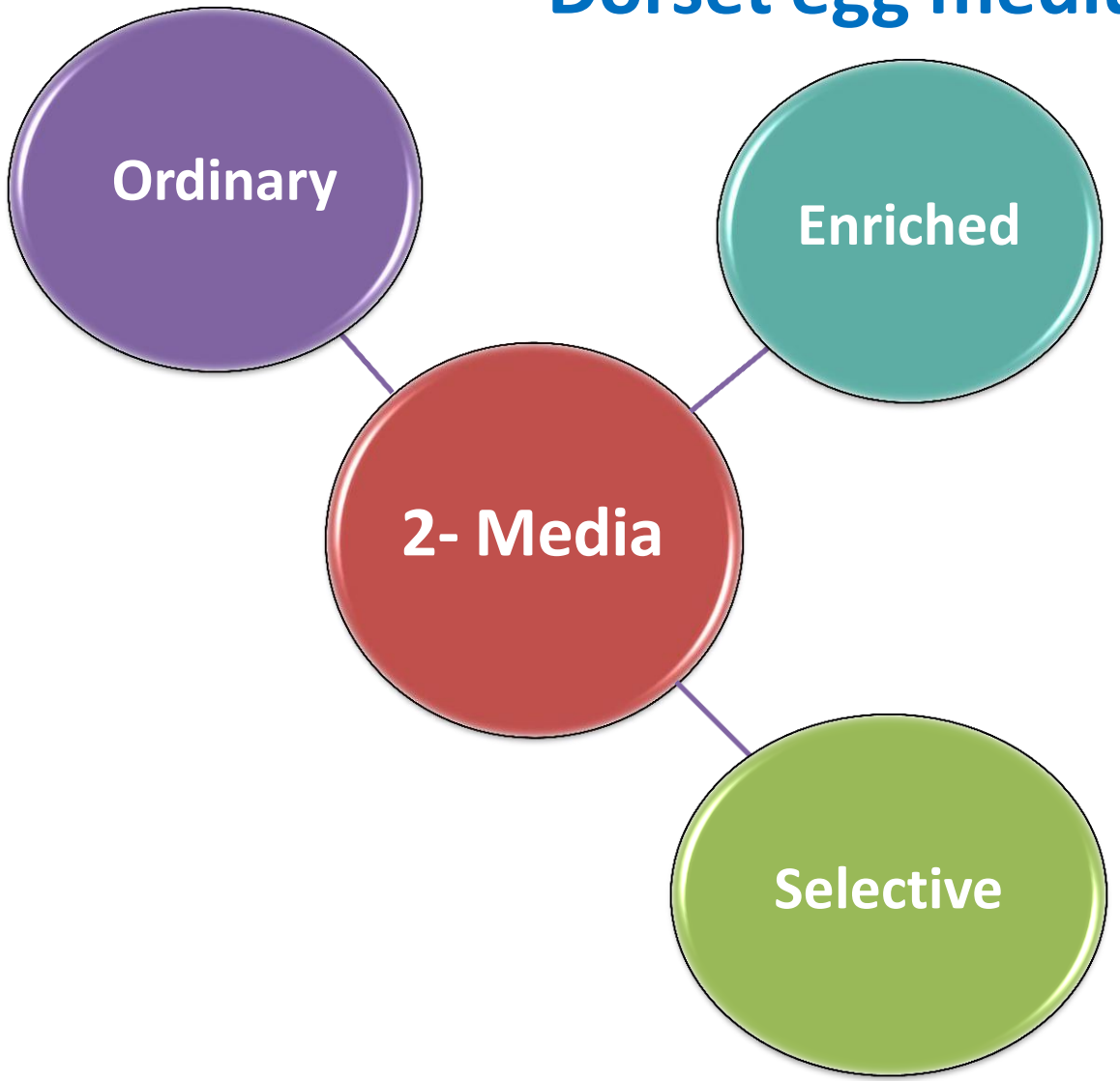
'Strict mesophile'

- Obligate aerobe

- 5-10% enhance growth

Dorset egg medium

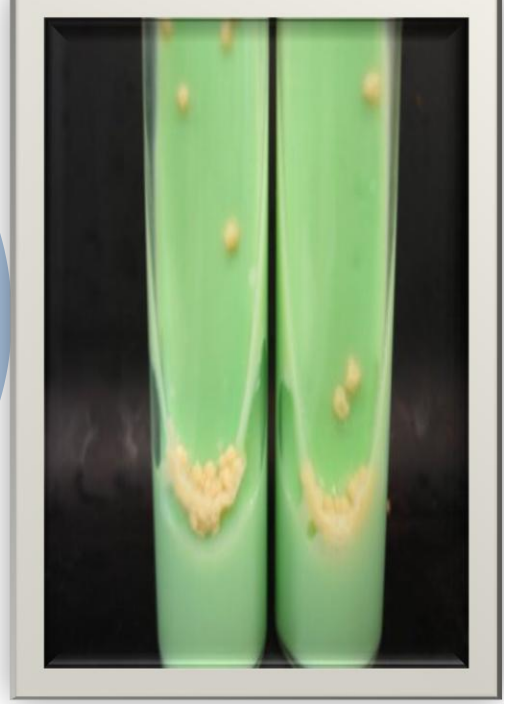
No growth



* Very slow grower (4-8 weeks)

- Lowenstein-Jensen medium
- Middlebrook medium ‘agar-based’

Colony Identification



ZN Stained film

Characters

Dry, raised, rough, grayish, confluent “eugenic growth”

Tuberculin test:

hypersensitivity skin test

-I.D. injection of (0.1 ml) containing (5 tuberculin units) of **PPD**.

- Read after 48-72 hours.

previously exposed to M.TB → induration > 10 mm

Renal

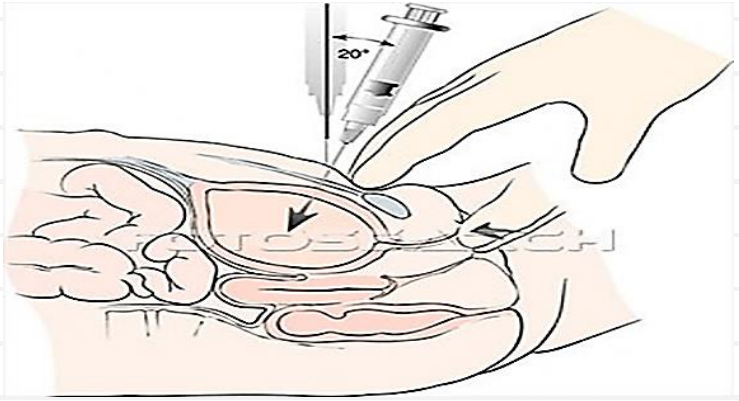
Method of urine sample collection

a. Early morning mid stream specimen

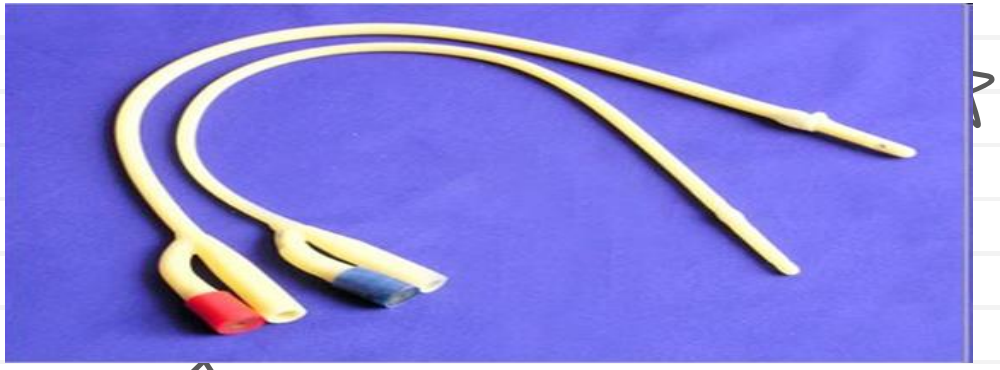
b. Adhesive bags

Method of urine sample collection

c. Supra-pubic aspiration

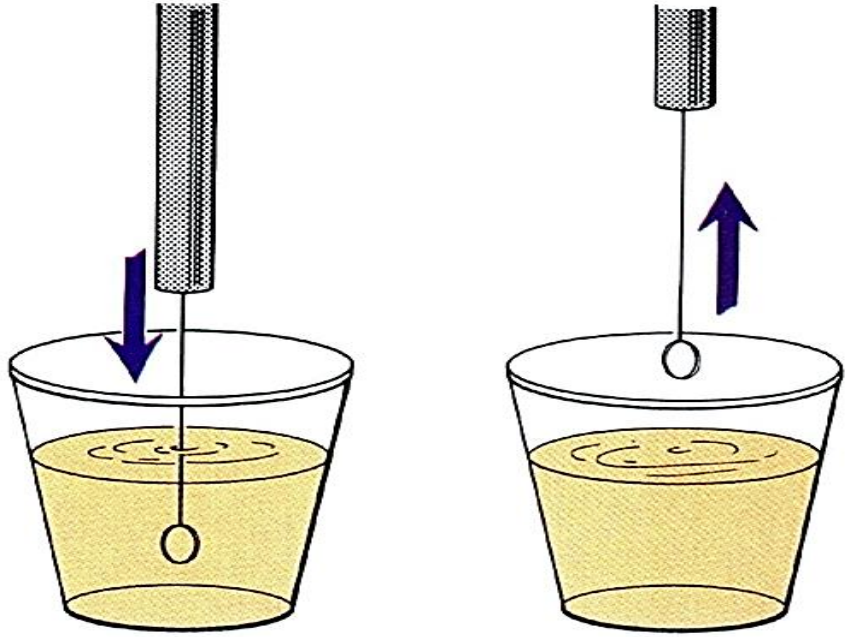


d. Catheterization of urethra or ureter



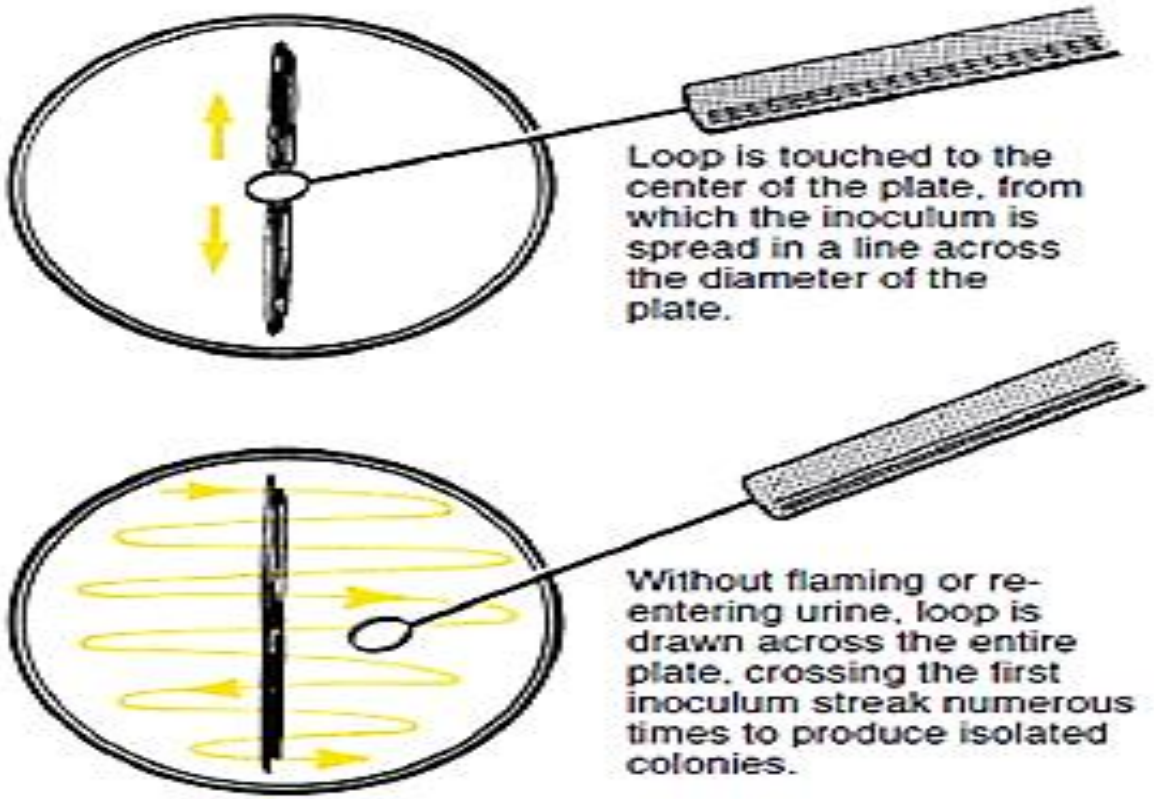
2- Culture:

Culture: on cysteine lysin lactose electrolyte deficient medium (CLED) medium

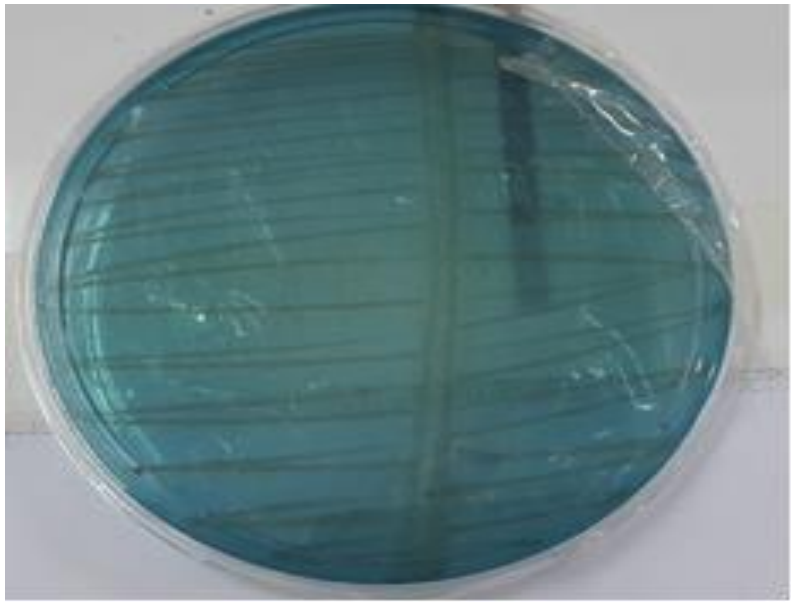


Inserting calibrated loop into the urine

Method for streaking:



CLED agar (uninoculated).



NLF on CLED agar

LF on CLED agar

Caustive pathogens:

Bacteria

- **Gram negative**
  - *E.coli.*
  - *Klebsiella.*
  - *Pseudomonas aeruginosa.*
  - *Proteus.*
- **Gram positive**
  - *Staphylococcus aureus.*
  - *Streptococcus fecalis.*
  - *Staphylococcus epidermidis.*
  - *Staphylococcus saprophyticus.*
- **Others**
  - *Mycobacterium TB.*
  - *Chylamydia.*
  - *Ureaplasma urealyticum.*

Pseudomonas:

Diseases:

UTI, OM, wound infection, bacteremia.

Morphology:

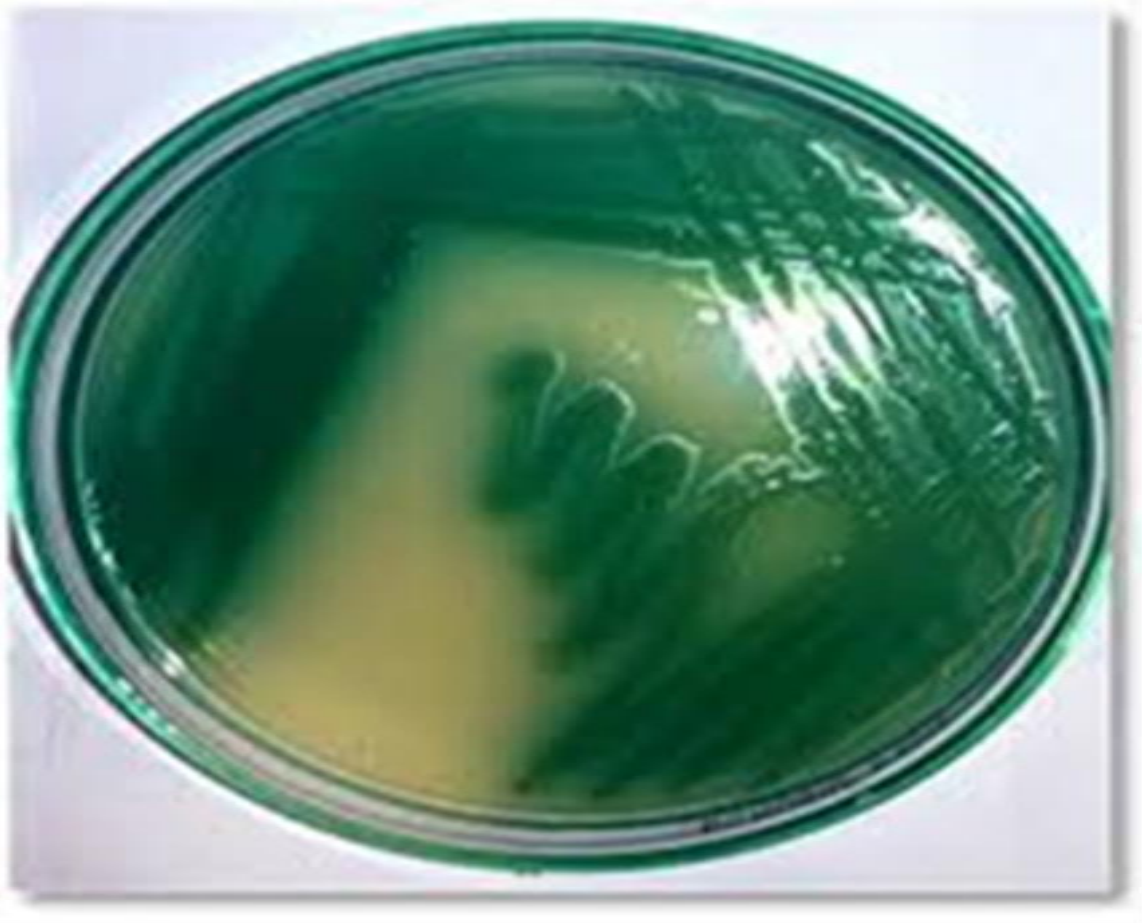
- Gram-negative rods.
- Motile by means of a single polar flagellum.

Culture character:

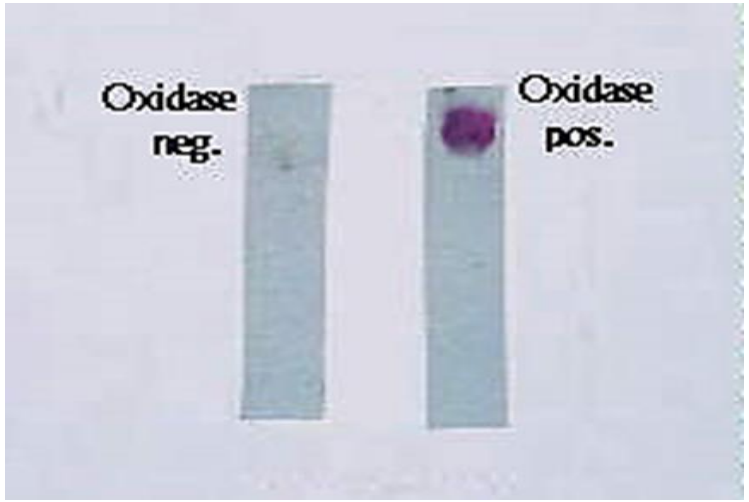
- Grows well on most laboratory media, able to grow at 42°C with specific fruity odor.
- Produce two types of exopigments: The fluorescent pigment pyoverdin. The blue pigment pyocyanin.

BR:

Oxidase: positive.
Ferments no sugar.



Pseudomonas aeruginosa exopigment on nutrient agar.



Oxidase test

Pseudomonas, produce oxidase enzyme, which can reduce oxidase reagent to a deep purple colour.