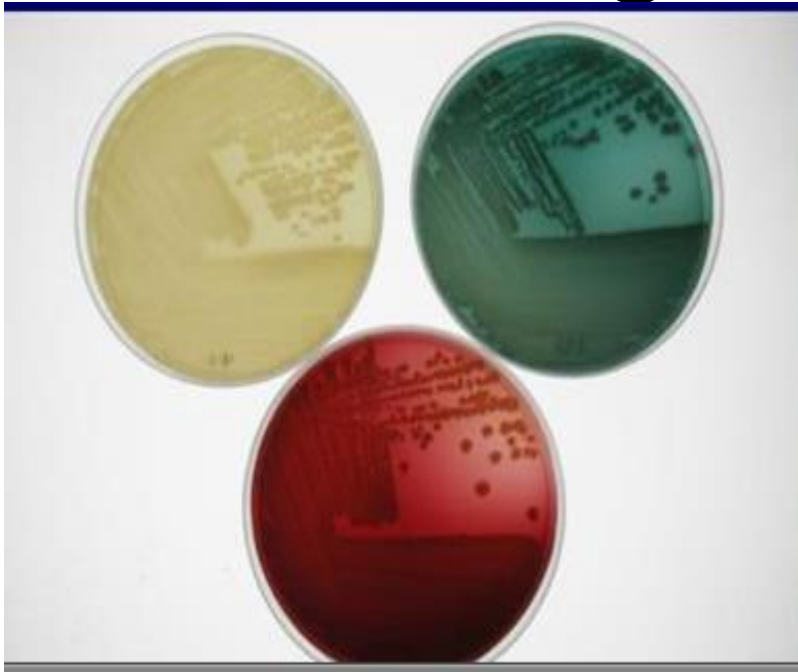
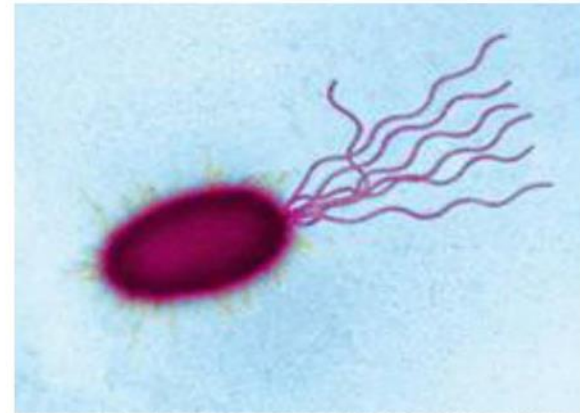


Pseudomonas aeruginosa



Pseudomonas aeruginosa



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Asst.prof. Hanan Sami

Pseudomonas aeruginosa is ...



- Gram –negative
- rod-shaped
- Motile
- A facultative aerobe
- usually fluoresced blue-green on culture media when exposed to UV light
- grows well at 37-42 degrees Celsius
- releases a 'sweet' grape like odor
- found in most environments, including soil, humans, animals, plants, water, sewage, and hospitals

Characteristics

- Shape: Rod-shaped with unipolar motility.
- Opportunistic human and plant pathogen.
- secretes a variety of pigments, including:
 1. pyocyanin (blue-green)
 2. pyoverdine (yellow-green and fluorescent)
 3. Pyorubin (red brown)



Diagnosis of *P. aeruginosa*

- Isolation and lab identification of the pathogen
- *P. aeruginosa* grows well on most laboratory media
- Identified on the basis of its:
 - Gram morphology,
 - inability to ferment lactose,
 - a positive oxidase reaction,
 - its characteristic odor,
 - its ability to grow at 42° C.
 - Fluorescence is helpful in early identification of *P. aeruginosa* colonies and may also help identify its presence in wounds.





The pigments diffuse into the medium giving it a dark greenish-blue colour

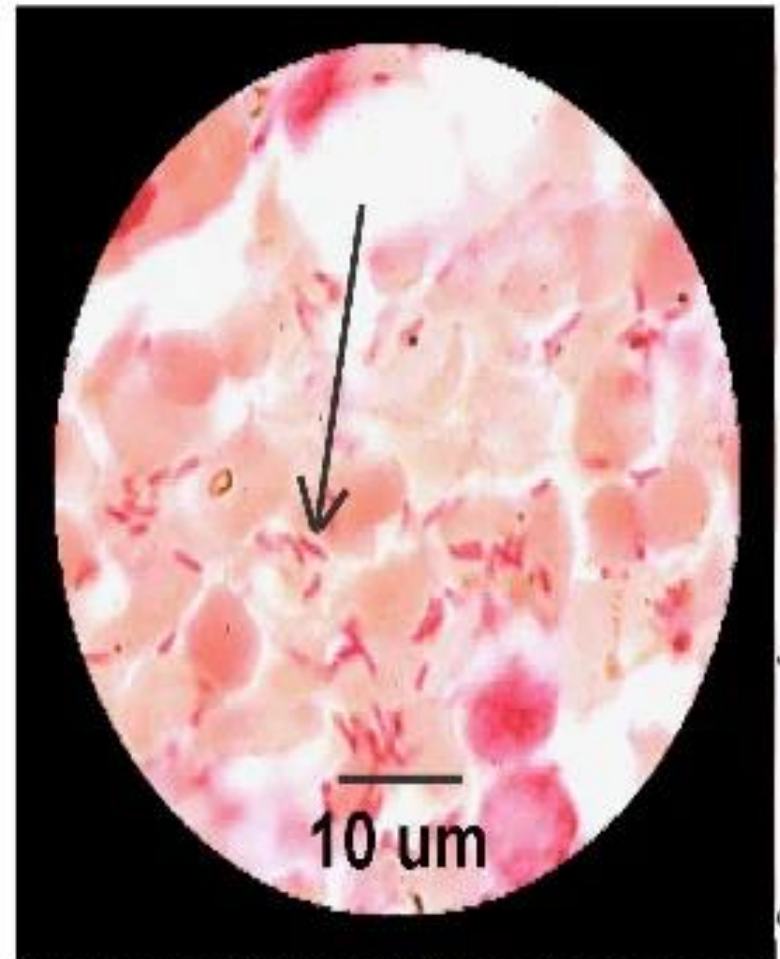
P. aeruginosa produces large, flat, spreading colonies which are often haemolytic and usually pigment-producing.

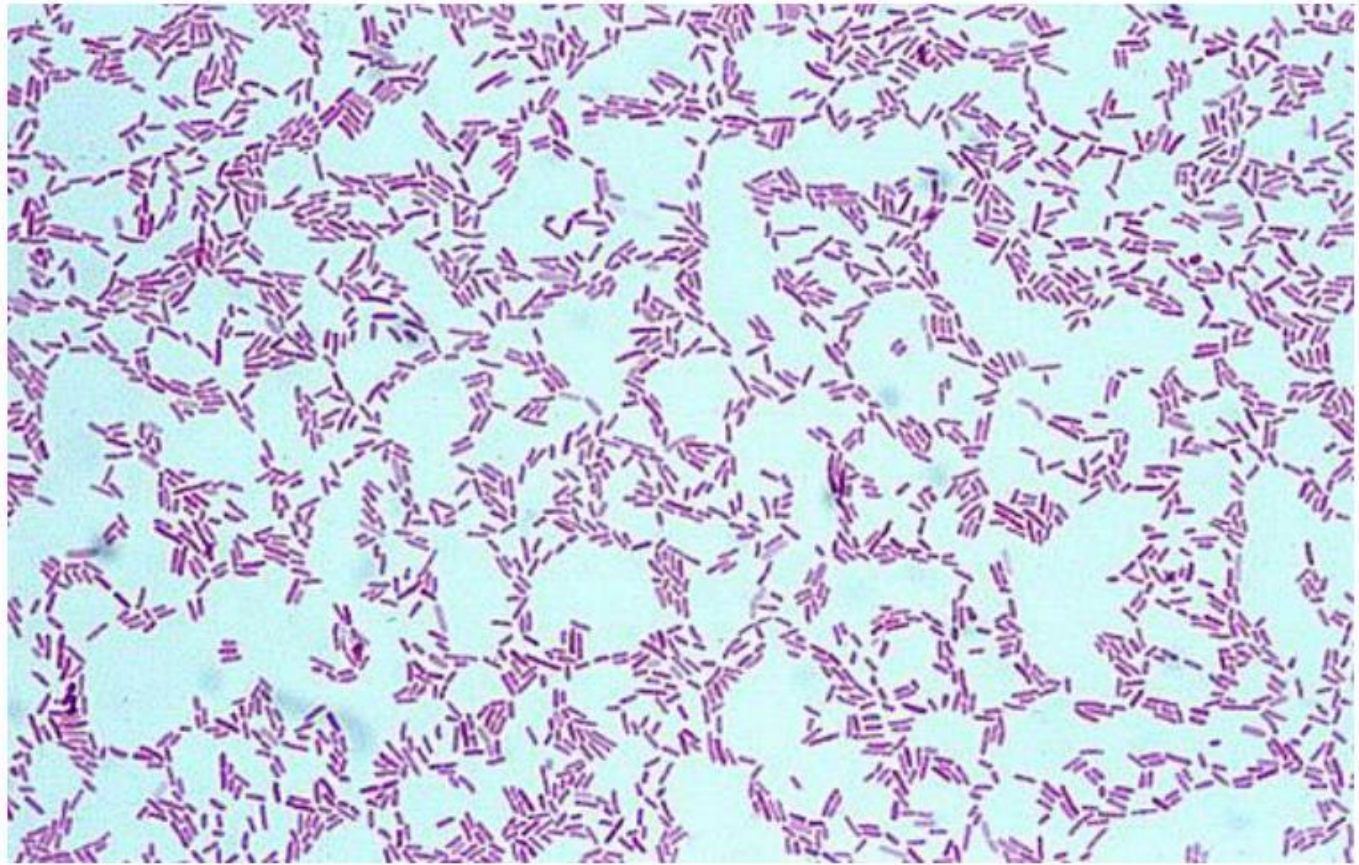


Microscopy

-Gram stain

Gram negative rod
undistinguished from
enerobacteriaceae.





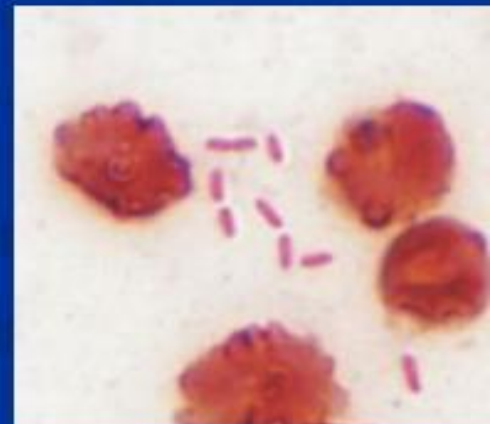
Pseudomonas aeruginosa is a Gram negative, non-sporing motile rod

■ Properties:

1. Pseudomonas is a gram negative rod with polar flagella
2. It is strict or obligate aerobe unlike the members of enterobacteriaceae.

Therefore it gets its energy through aerobic processes and not through fermentation.

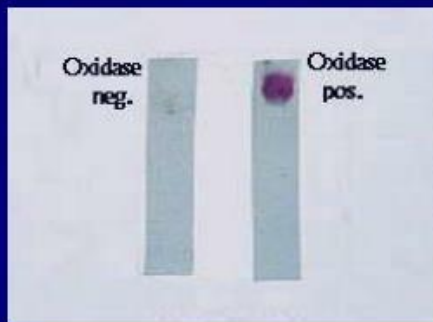
3. It is lactose non fermenter



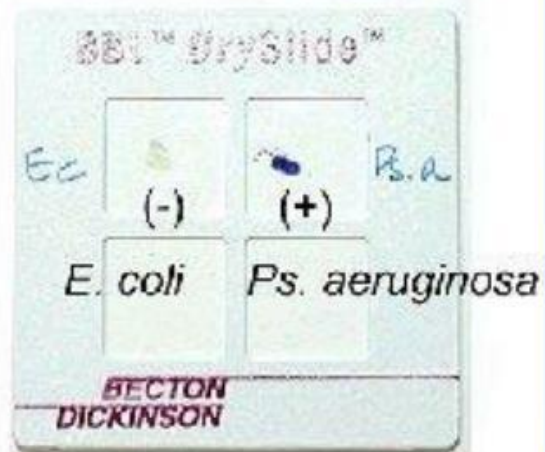
Pseudomonas

- small gram-negative rods with a single polar flagellum, produce oxidase & catalase
- highly versatile metabolism

* Oxidase _ positive



Oxidase Test



N. meningitidis: Oxidase-positive

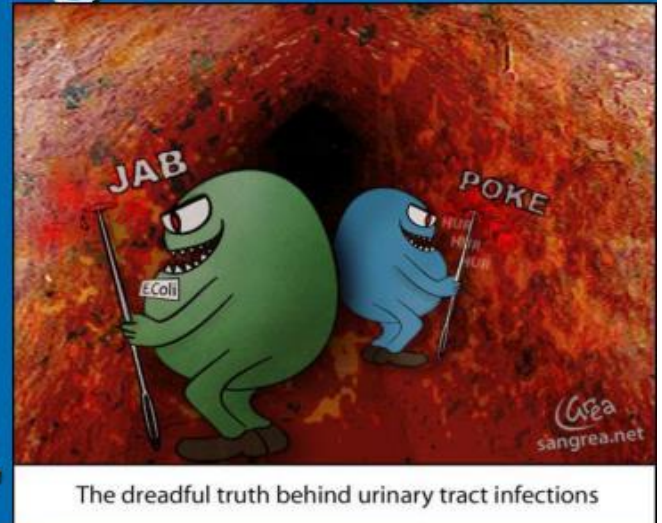


PATHOGENICITY

- Blue pus
- Causing the nosocomial infection
- Suppurative otitis
- Localised and generalised infections
- Urinary tract infection after catheterization
- Iatrogenic meningitis
- Post tracheostomy pulmonary infections

Pseudomonas aeruginosa

- common cause of nosocomial infections in hosts with burns, neoplastic disease, cystic fibrosis
- Can cause: pneumonia, UTI, abscesses
- Septicemia can lead to: endocarditis, meningitis, bronchopneumonia
- Corneal ulcers from contaminated lens solutions
- Ear infections (Otitis) “swimmer’s ear”
- Skin rash (contaminated hot tubs, saunas, swimming pools)
- **multidrug resistant**



GNR: Glucose “O”, Oxidase +, MAC +

Pseudomonas aeruginosa infections

- Cystic fibrosis patients – serious lung infections
- Immunosuppressed
- Burn wounds
- Osteomyelitis
- UTI, septicemia,
- Corneal ulcers (blindness)
- Swimmer’s ear, folliculitis