Assistant teacher
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Pseudomonas aeruginosa Toxins

Characters of *Pseudomonas aeruginosa* species

1. Widely found in soil and water, Motile - **Produce water-soluble pigments**.
2. **Opportunistic** pathogens and isolates from **Cystic fibrosis**
3. Slender gram negative **bacillus Mono-flagellate.**
4. Identification of *P. aeruginosa* is based on **oxidase test** and colonial morphology: β- hemolysis, presence of **a fluorescent greenish** pigments and grape-like odor or sweet odor and **blue-green pus**, and growth at 42 o C.
5. Causes Blue pus & otitis media and nosocomial infection.
6. *P. aeruginosa* is invasive and toxigenic.

Toxins *of Pseudomonas aeruginosa*

P. aeruginosa produces a large number of extracellular toxins, which include: Phytotoxic factor, pigments, hydrocyanic acid, proteolytic enzymes, enterotoxin Phospholipase, and exotoxin.

Toxins	
Exotoxin A	Acts by prevention of synthesis of proteins in eukaryotic cells; causes tissue damage in chronic pulmonary infection, dermatonecrosis in burns wound, and destruction of cornea in ocular infection; causes immunosuppression
Exoenzymes S and T	These toxins show adenosine diphosphate ribosyl transferase activity, inhibit protein synthesis, and cause immunosuppression

Laboratory diagnosis

- **Gram stain** • Gram-negative with a single polar flagellum.

Culture characteristic

1. **On blood agar**+β- hemolysis
2. **On MacConkey agar** = Lactose negative
3. **Selective medium:** Cetrimide Agar

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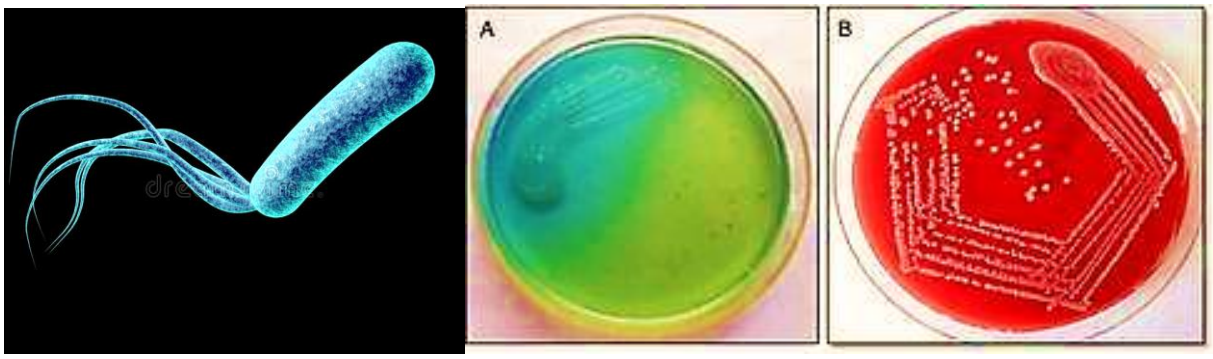

4. **Biochemical test**

1- **A triple sugar iron agar (TSI)**: tube inoculated with *P. aeruginosa* and incubated at 37°C for 24 hours results in an unchanged slant and butt.

2- **Procedure of Oxidase test**