

Staphylococci

Staphylococci are

- Gram positive
- Spherical cells
- Arranged in grape like irregular clusters
- Included 35 species (Staphylococcus aureus, (Staphylococcus epidermidis, Staphylococcus Saprophyticus

MORPHOLOGY AND IDENTIFICATION

- Spherical cells about 1 μm in diameter
- Non motile
- Not form spores
- Their can be yellow ,red ,orange

CULTURE

- Aerobic or microaerophilic conditions
- Grow most rapidly at 37C°
- Colonies on solid media are round ,smooth, raised .
- Staphylococcus aureus form gray to deep golden yellow colonies.
- Staphylococcus epidermidis colonies gray to white .

ENZYMES AND TOXINS

1. Catalase

- It is produce catalase, which converts hydrogen peroxide into water and oxygen.
- The catalase differentiates the staphylococci ,which are positive from the streptococci , which are negative .

2. Coagulase

- Staphylococcus aureus produces coagulase .
- coagulase binds to prothrombin, they become enzymatically active and initiate fibrin polymerization.
- Coagulase production is considered synonymous with invasive pathogenic potential.

3. leukocidin

- Leukocidin : it is toxin ,kill white blood cells of humans .
- This toxin is an important virulence factor.

4. Exotoxins are included:

- α -Toxin is acts on a broad spectrum of eukaryotic cell membranes. It is a potent hemolysin.
- β -toxin degrades sphingomyelin and therefore is toxic for many kinds of cells
- γ -toxin is play role in diarrheal diseases. And lysing white blood cells.

DIAGNOSTIC LABORATORY TESTS

1. specimens
2. smears
3. culture
4. catalase test
5. coagulase
6. serologic and typing test

SPECIMENS

Surfaces swab pus ,blood ,tracheal aspirate or spinal fluid for culture

STAINING SMEAR

Gram positive cocci in cluster in gram stained smears of pus or sputum

CULTURE

Specimens planted on blood agar plates gives rise to typical colonies in 18 hours at 37C^o, hemolysis and pigment until several days .

PATHOGENESIS

- Staphylococcus aureus are important pathogen causing infections associated with dental caries.
- Staphylococcus epidermis: normal flora of human skin and respiratory and gastrointestinal tracts.
- Staphylococcus saprophyticus causes urinary tract infection in young

STAPHYLOCOCCUS IN MOUTH

- Symptoms can include:
 - pain, redness, and swelling around the affected tooth.
 - fever.
 - swelling in your cheeks or face.
 - bad taste or bad smell in your mouth.

DENTAL CARIES

- A dental abscess is a pocket of pus that develops around a tooth due to a bacterial infection.
- Symptoms can include:
 - pain, redness, and swelling around the affected tooth.

TREATMENT

- Penicillin
- Vancomycin
- Nafcillin
- Daptomycin
- Linezolid
- Oxacilli