RS – Microbiology Lab – Notes

Bacteria:

Throat swab → Strep & Staph isolated → cultured on **blood agar** or **KLED agar**.

A. *Staphylococci*: seen as Gram positive spherical "clusters" under light microscope.
  ➢ Catalase test: positive.

	Staphylococcus aureus (pathogenic)	*Staphylococcus epidermidis (albus)*
Coagulase test (using plasma)	Positive (clotting occurs)	Negative (no clotting)
Blood agar	Yellow-gold colonies	White colonies
Mannitol salt agar (pink)	Fermentation (yellow colonies and agar)	No fermentation (white colonies on same color of agar)

B. *Streptococci:* seen as Gram positive spherical "chains" under light microscope.
  ➢ Catalase test: negative.

Streptococci → cultured on blood agar → distinguished by actions of hemolysis:

1) Alpha hemolysis: partial breakdown of RBCs → greenish-grayish color
  ➢ Add **Optochin** disc:
  • Sensitive: inhibition zone more than or equal to 16mm → *Streptococcus pneumonia*
  • Resistant: small inhibition zone → *Viridans Streptococci*
2) Beta hemolysis: complete breakdown of RBCs → colorless
  ➢ Add **Bacitracin** disc:
  • Sensitive: inhibition zone seen → Group A → *Streptococcus pyogenes*
  • Resistant: no inhibition zone → Group B → *Streptococcus agalactiae*

Fungi:

A. Candida:

- Yeast under microscope: Gram positive round cells.
- On **Sabouraud dextrose agar**: creamy color, smell of yeast.
- Gram-tube test: serum + *Candida albicans* → incubate for 4 hours → reproduce → sample taken by loop → place on microscopic slide → Gram stain → pseudo-hyphae (elongations). If pseudo-hyphae are seen, this confirms the Candida is of *albicans* species.
- To distinguish between 4 species of Candida: **CHROMagar:**

Candida albicans	Green
Candida tropicalis	Blue
Candida glabrata	Dark pink
Candida krusei	Rough, light pink

B. *Aspergillus niger*: Black colonies on **Sabouraud dextrose agar.**

C. Penecillium species: Blue-green colonies on **Sabouraud dextrose agar.**

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