Staphylococcus aureus

Gram reaction and morphology: Gram positive cocci in clusters

Oxygen requirement: facultative anaerobe

Habitat and human pathogenicity: S. aureus may be found as normal flora of human skin and nasal passages. It is known as the species of this genus that is the most pathogenic. It has been known to produce extrapolysaccharide substances as a way to produce a biofilm, similar to S. epidermidis. S. aureus causes a variety of pus-forming infections and toxinoses in humans. It may be the causative agent of skin lesions such as boils, styes and furuncles. It may also be the cause of more serious infections such as pneumonia, meningitis, osteomyelitis and endocarditis. S. aureus is a major cause of nosocomial infections. S. aureus is also a major cause of food poisoning by releasing enterotoxins into food and toxic shock syndrome, caused by the TSS toxin. S. aureus expresses many virulence factors including, but not limited to: hyaluronidase, catalase, coagulase, kinases, protein A and hemolysins.

Colony characteristics (on Blood agar plate):

Size	Medium to large
Color	Shiny, yellow colonies
Hemolysis	Beta hemolytic

Biochemical characteristics:

Test	Result
Catalase	(+)
Oxidase	(-)
Coagulase	(+)
Fermentation of mannitol	(+)
Growth on 7% NaCl	(+)

Small fact: MRSA (methicillin resistant *Staphylococcus aureus*) was first reported in the United Kingdom in 1961. In 1996, the first case of VRSA (vancomycin resistant *Staphylococcus aureus*) was reported in Japan. The problem? Methicillin was previously used to treat infections caused by susceptible Gram-positive bacteria, particularly beta-lactamase producing organisms including *Staphylococcus aureus* that would otherwise be resistant to most penicillins. Vancomycin has traditionally been reserved as a drug of last resort, used only after treatment with other antibiotics has failed.