

Unknown Lab Report

#20

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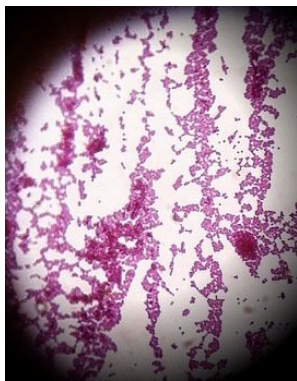
Nasreen Haque

Microbiology

3302

Purpose

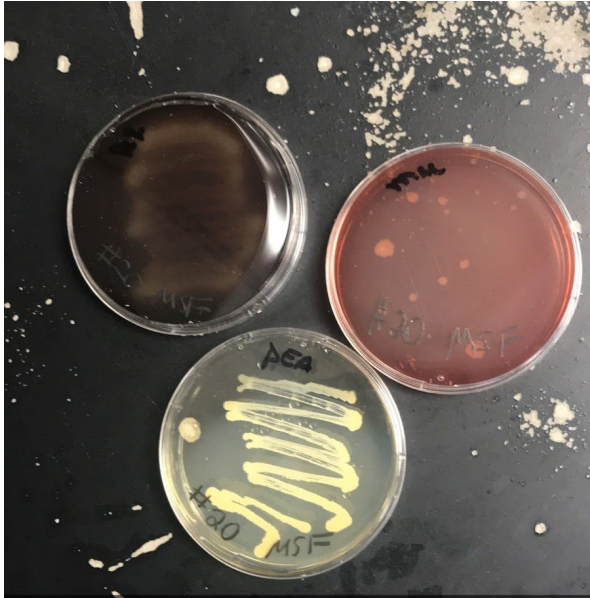
In order to identify the unknown bacteria, a gram stain and culture media tests were performed. Unknown bacteria labeled as number #20 was given to me by the lab instructor. The methods that have been learned thus far for identifying bacteria were been applied to this unknown. The first procedure that needed to be done was a gram stain test; a technique that differentiates bacteria into either Gram-positive (purple) or Gram-negative (pink) based on the coloring of their cell walls. The second procedure that needed to be done was performing a media culture by streaking the unknown onto three different types of agar plates; using the T streak method described in the lab manual. This tests the purity of the unknown. After the plates were incubated and grown, the morphology was observed and recorded.



Gram Stain A sample of the unknown #20 bacteria was placed on a slide and rinsed with Crystal Violet, Iodine Solution (the Mordant), Decolorizer (ethanol), Safranin (the Counterstain) and water. After this procedure, the slide was placed under a light microscope to be observed. The unknown resembled clusters of purple grapes, indicating that the sample was be a Gram-positive cocci bacteria. This narrowed down my results to being either *Staphylococcus aureus* or *Staphylococcus epidermis*, as the circles did not appear as chains or tetrads.

Culture Unknown #20 was then inoculated and cultured on 3 different types of agar plates. Results below after proper incubation.

Media Plate	Type	Purpose	Appearance of <i>S. aureus</i>
MacConkey (lactose) Agar	Selective & differential	Selects for non-fastidious gram-negatives; differentiates lactose-fermenters from non-fermenters	No growth
Phenylethyl alcohol agar (PEA)	Selective	Used to cultivate Gram positive organisms. The active ingredient, phenylethyl alcohol, inhibits or markedly reduces growth of Gram negative organisms by interfering with DNA synthesis.	Good growth
Blood agar	Differential	Determine types of hemolysis: α , β , γ α : partial clearing, green or brownish ring β : wide zone of clearing; large, round, golden-yellow colonies γ : non-hemolytic	Complete lysis of red cells in the media around and under the colonies: the area appears lightened (yellow) and transparent.



Results

In conclusion, it was found that the gram positive bacterium was in fact *Staphylococcus aureus*. When looked at under a microscope it appeared to be a cluster of what looked like purple circles. This shape is known as cocci. When grown on a blood agar plate, it was clear that the bacteria was not *Staphylococcus epidermis* but rather *Staphylococcus aureus* due to the yellow-opaque color, indicating complete beta (β) hemolysis. *S. aureus* is known as one of the most resistant bacteria to multiple antibiotics and considered the most pathogenic.