

Medical unknown

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** Introduction : A medical microbiology lab performs testing on human samples collected from different body sites. The tests are used to detect and identify any microorganisms capable of causing disease. Knowing of unknown microorganism is important on how this microorganism works and how it is structured, means knowing how it can affect humans. The purpose of this study was to identify an unknown bacterium by applying all methods that were previously conducted and learned in the medical microbiology laboratory class. **Materials : 1) Blood agar plate . 2) Mannitol Salt agar (MSA) plate.) DNase agar plate . 4) Novobiocin disc . 5) Inoculating loop. 6) flame (Bunsen burner) . 7) 1N hydrochloric acid (HCl) . 8) Two slides . 9) Plasma tube. 10) 3% Hydrogen Peroxide (H₂O₂) . 11) One unknown plate . 12) Crystal violet. 13) Gram's iodine . 14) Safranin. 15) Alcohol . ** Methods : An unknown labeled with number 8 was given out by the lab instructor. The goal at this point was to determine unknown gram positive bacteria. The procedures performed consisted of sterile technique in addition to being followed as stated in the referenced course laboratory manual by Matar (1) , unless otherwise noted.

Not all of the tests were performed on every culture. However, there are as some of the tests were used only for gram (+) others were even more specific and used only for cocci bacteria . The first procedure have been done was to observe and record the morphology of the unknown sample. However, Gram stain should be done to be sure that unknown sample were gram positive and to identify cells morphology. After that biochemical tests were chosen for unknown identification . first of all was done the catalase

test to differentiate between the two types of cocci bacteria (Staphylococcus and Streptococcus) .

Since unknown 8 was determined to be Staphylococcus coagulase test in addition to the following tests were performed on this unknown : 1) Production of DNase on DNase agar. 2) Blood agar with novobiocin (NB) test . 3) Mannitol fermentation on Mannitol Salt agar (MSA) . **Results : Colonies morphology on plate was given were as follows : circular, raised, smooth, opaque, white-yellow pigments. After knowing that it was Gram positive cocci , a catalase test and coagulase test was done , in addition to different plates incubation (Blood agar , DNase and MSA plates) .

The following table lists all of the tests were done : Test| Purpose| Reagents| Observations| Results| Gram stain| To determine The gram rxn ofBacterium. | Crystal violet, Iodine, Alcohol&Safranin. | Purple cocci| Gram positive Cocci . | Catalase test| To determine ifBact. Posses catalase enzyme. | 3% H₂O₂| Oxygen bubblesWere observed. | Positive catalaseTest. | Coagulase test| To detect thePresence of “ Clumping factor”. | Plasma. | No clot was Formed. | Negative coagul-ase test . | DNase plate Test| To determine ifBact. producesDNase enzyme. | 1N HCl . Cloudy zone (notClear one). | Negative . | Hemolysis test(blood agar). | To determine ifBacteria do Hemolysis. | None . | No visible Changes wereAround colonies. | Gamma hemolysis| Mannitol Fermentation. | To determineThe ability of Bacterium to ferment mannitol. | None . | Color changeFrom pink to Yellow . | Positive mannitolFermenter. | Novobiocin Test| To detect Sensitivity or Resistance of Bact to NB Antibiotic. | NB antibiotic . | No zone ofInhibition aroundDisc. | Resistant bact. | Flowchart Unknown 8 Gram stain Gram positive cocci Catalase test(positive)

Positive Negative Staphylococcus aureus. Streptococcus pneumonia
 Staphylococcus epidermidis. Viridans Streptococci Staphylococcus
 saprophyticus S. pyogenes S. agalactiae Coagulase and Dnase test (Negative)
 Enterococcus sp. Positive Negative Staphylococcus aureus. Staphylococcus
 epidermidis. Staphylococcus saprophyticus Novobiocin test(Resistance)

Sensitive Resistance Staphylococcus epidermidis. Staphylococcus
 saprophyticus MSA plate (Positive) Negative Positive Staphylococcus
 epidermidis. Staphylococcus saprophyticus Staphylococcus aureus. Blood
 agar plate(hemolytic test) (no hemolysis) Staphylococcus saprophyticus
 Unknown 8- S. saprophyticus **Discussion /Conclusion : It was concluded
 that Unknown 8 was S. saprophyticus . After applying Gram stain the gram
 positive bacteria was cocci in shape when viewed with a light microscope so
 a catalase test was performed.

The bacteria was able to break down hydrogen peroxide upon its addition
 into water and gaseous oxygen which created bubbling and indicated a
 positive result. A sample was then inoculated on a mannitol salt agar plate.
 After incubation growth was present and the red media had turned yellow
 around the growth as a result of high levels of acid production. The data
 suggests that the gram positive bacteria was Staphylococci saprophyticus
 because it was gram positive, was catalase positive with the production of O,
 and was resistant to novobiocin disc.

Staphylococcus saprophyticus is a strain of Staphylococcus bacteria.
 Approximately 25 percent of individuals carry this bacteria in the anal area,
 genitals, nose and mouth. People who walk barefoot are prone to acquire the
 bacteria from the floor. Staphylococcus may cause an infection when the
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bacteria enter a cut in any area of the body. These staph infections can range from boils to flesh-eating infections. The most common staph infection is *Staphylococcus saprophyticus* which commonly occurs in women.

This staph is one of two bacteria which can invade the urinary tract. Approximately 20 percent of women who suffer from a urinary tract infection (UTI) will have another infection. **References : 1) Matar, Suzan. Medical microbiology Laboratory Manual. Jordan: University of Jordan publishing. 2) <http://www.studymode.com/subjects/unknown-lab-report-on-gram-positive-bacteria-page1.html> . 3) http://en.wikipedia.org/wiki/Gram-positive_bacteria . 4) http://www.ehow.com/about_5453276_staphylococcus-saprophyticus-infection.html