# Medicinal microbiology lab report assignment

When grown on McCracken agar, A had abundant growth of ink puncturing colonies that are circular and moist. Microbes A are gram- negative Cisco. B had moderate growth of yellow puncturing colonies that are circular and moist. Microbes B cells are gram-positive Cisco. C had abundant mm growth of pink colonies that are circular and have a mucous consistency. Microbes C are gram-negative rods bacilli. D had abundant growth of mm yellow colonies that are circular and have a mucous consistency. Microbes D are gram-negative bacilli that gave off a fishy smell.

Swarming was observed on plate D. E has an abundant growth of gram-negative, mm circular blue-green loonies with diffused green pigments. E gave off a pungent dour and have a mucous consistency. No growth was observed for F. When grown on blood agar under aerobic conditions, A had abundant growth of 1 mm white, circular, moist colonies that exhibited gamma hemolytic. B had moderate growth of 1 mm white, circular, moist colonies that exhibited gamma hemolytic. C had abundant growth of mm white, circular, mucous colonies that exhibited alpha hemolytic.

D had abundant growth of mm white, circular, mucous colonies that exhibited alpha hemolytic. Swarming was observed in plate D and colonies gave off a fishy smell. E has an abundant growth of mm blue-green colonies of indistinguishable shape with diffused green pigments. E exhibited beta hemolytic. Microbes E gave off a pungent dour and have a mucous consistency. No growth was observed for F. When grown on blood agar under anaerobic conditions, A had moderate growth of 1 mm white, circular, moist colonies that exhibited gamma hemolytic.

B had moderate growth of puncturing white, circular, moist colonies that exhibited gamma hemolytic. C had moderate growth of puncturing white, circular, mucous colonies that exhibited gamma hemolytic. D had scanty growth f puncturing white, circular, mucous colonies that exhibited gamma hemolytic. Colonies of D gave off a fishy smell. E has scanty growth of white, circular colonies that exhibited gamma hemolytic. Microbes E gave off a pungent dour and have a mucous consistency. F had moderate growth of 1 mm, white, circular, moist colonies that gave off a pungent dour and exhibited alpha hemolytic.

When grown on nutrient agar under anaerobic conditions, no growth was observed for E. However, under aerobic conditions, E had moderate growth of MIM blue- green pigmented colonies that were circular, mucous in consistency and gave f a pungent dour. Catalane Test – No effervescence observed when hydrogen peroxide was added to A (i. E. Negative test) but effervescence observed when added to B (i. E. Positive test). Oxides Test – No color change (i. E. Negative test) for C, D and F but purple coloration observed for E (i. E. Positive test).

Oxidation-fermentation tubes – Under both anaerobic and aerobic conditions, agar in C were uniformly yellow, indicating positive tests. Under aerobic conditions, E has uniformed yellow agar indicating a positive test, while under anaerobic conditions had uniformed green agar, indicating a negative test. Triple sugar iron tubes – The yellow agar in C was cracked and had a column of air at the butt of the ITS tube. Majority of the agar in D was red but black precipitate was observed at the butt of the ITS tube. Slant of agar in E is red but agar at the butt is yellow.

Oxygen requirement and intermediation susceptibility – Under aerobic conditions, no growth was expected in F. However, under anaerobic conditions, there was a clear plaque around MS disk but white colonies that exhibited alpha hemolytic observed at the edges of the plate furthest away from the MS disk. Urea Slope – Uniformed yellow agar indicated negative result for E. Bright pink agar indicates positive result for D. Mycology – G was gram-positive, indicated by the purple coloration observed after gram-staining. When H was observed under the microscope, germ tubes were observed.

DISCUSSION Catalane test – This test is used to differentiate between many gram-positive microbes, as it detects the presence of catalane enzyme by observation of effervescence during oxygen gas production CITATION Pat M 1033 (Title, 2014). A does not contain catalane but B does. Oxides test -This test is used to differentiate between groups of gram-negative bacteria, as it detects stockroom oxides activity in the electron transport and nitrate metabolic pathways of certain microbes CITATION Patti1 1033 (Title, 2014). C, D, and F do not contain oxides enzyme while E does.

Oxygen requirement and intermediation (MS) susceptibility – Conversion of MS to its active form requires environments with low redo potential, thus anaerobes convert MS to its active form. After which MS binds covalently to DNA disrupting its helical structure and inhibiting bacterial nucleic acid synthesis and resulting in cell death CITATION Pat 14 M 1033 (Title, 2014). Thus the clear zone of inhibition was observed around the MS disks informs that F is an anaerobe, which is consistent with the lack of growth of F when inoculated on blood agar aerobically.

Oxidation-fermentation (OF) tubes OF test is important in differentiating members of the family Intercontinental, glucose ferments, from the aerobic pseudonymous and similar gram-negative Negative bacteria, because the latter are non-ferments (Mammon et al. , 2011 Glucose fermentation undergoes the glaciology pathway, resulting in a color change in the medium from yellow to green. C fermented glucose both in the absence and presence of air, resulting in yellow agar. E was only able to ferment glucose in the presence of air, so green agar was observed under anaerobic conditions.

Triple sugar iron tubes – This test is a used to determine if a gram- negative rod is a glucose-fermented or not, in addition to testing if the microbe can ferment sucrose and/or lactose, gas production during glucose fermentation and HAS production – all of which are useful in differentiating gram-negative rods from the Intercontinental family (Mammon et al. , 2011). Acid is produced when sugars are fermented, resulting in a drop in PH. Phenol red turns yellow once the pH drops below 6. 8. Moreover, because of the slanted shape of the agar, microbes are exposed to anaerobic and aerobic environments in varying degrees.

Since only the butt of E is yellow while the slant is red, it can be deduced that E only ferments glucose such that the acid produced is not enough to turn the slant yellow. If the tube had been observed between the first 8-24 hours of inoculation, one would find that E had yellow slant and yellow butt; but after 24 hours, the yellow slant changes color to red as alkaline amines are formed from the oxidative decertification of peptides derived from proteins in the medium. The black precipitate observed at the butt of tube D

indicates that microbe D can use tessellate anion as a terminal electron acceptor, reducing it to sulfide.

The ferrous sulfate in the agar medium then reacts with hydrogen sulfide to form ferrous sulfide, which is observed as black precipitate. C is a lactose- and glucose- fermented because complete permanent acidification of both the butt and the slant of the tube were observed. The volume of air at the butt that pushed the agar upwards is hydrogen gas. CITATION Kong 1033 (Keenan, 1997)Urea Slope – This test helps to identify certain species of Intercontinental, such as Protests SSP. CITATION Pat MM 1033 (Title, 2014).

Microbes that posses areas will hydrology urea, releasing ammonia. The agar turns a bright pink to indicate the presence of an increase in pH, which can be attributed to the presence of ammonia. CITATION Kong 1033 (Keenan, 1997)Bacteriology – McCracken agar is only moderately inhibitory and is designed to prevent growth of gram- positive bacteria. Thus, A and B being gram-positive bacteria, only managed to survive as punctilious instead of MIM-sized colonies that they are when grown in optimal conditions (i. E. Aerobically on blood agar).