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Microbiology lab manual answers

Basic microbiology laboratory for higher division college students with color charts and very simple instructions. The manual covers the safety of the laboratory, the use of a microscope, aseptic transfer of bacteria, simple, gram, capsule, acid fast, spores and negative staining, bacterial environmental requirements, antibiotic susceptibility tests, bacterial monitoring methods, membrane filtration, number of standard plates, plaque analysis, biochemical tests for the identification of pathogenic enterobacteriaceae, unknown laboratory, Staphylococcus and Streptococcus and ELISA bacteria. Introduction Laboratory and safety rulesLab 1: Microscopic WorldLab 2: Aseptic technology Your factory in the laboratory works with many pathogenic bacterial species. Remember that bacteria are in the air, as well as on the skin, counter and in all objects and devices that are not sterilized. The main tool for transferring cultures is a wireworm needle or loop. It can be quickly sterilized by heating it to red hot in the flame of a Bunsen burner. Lab 3: Simple, negative and Gram StainGram stain is the most important and commonly used dyeing technique in the bacteriology laboratory. It is used to distinguish between gram (+) and gram (-) bacteria. Lab 4: Acid-Fast, Spores and Capsule StainsAcid-fast stain is a differential stain used to identify acid-fast organisms such as members of the genus Mycobacterium. Acid-fast organisms are characterized by waxy, almost impermeable cell walls; they contain mycolic acid and large amounts of fatty acids, waxes and complex lipids. Laboratory 5: Pipette and environmental requirementsLab 6: Antibiotic pre-exposure testing In microbiology, McFarland standards are used as a benchmark to produce solutions containing approximately the same amount of bacteria for use in standardised microbial tests (Kirby Bauer). This is done by adapting the opacity (turbidity) of the McFarland standard to the opacity (turbidity) of the test solution. Laboratory 7: SterilizationLab 8: Membrane filtrationMembrane filtration is a technique for testing water samples. In this procedure, water is drawn through a particularly porous membrane designed to capture microorganisms of more than 0.45 µm. The filter is then applied to the surface of the Endo agar plates and incubated for 24 hours. Endo agar is a selective substance that promotes gram-negative bacterial growth and inhibits gram-positive growth. It also contains lactose for fermentation and dye to indicate pH changes. Lab 9: Standard Plate CountLab 10: Plaque analysis and biochemical tests (day 1)Laboratory 11: Biochemical tests (day 2)Laboratory 12: Staphylococcus and StreptococcusLab 13: ELISA Thumbnail: Neutrophil (type of white blood cell, blue-gray) interacting with Klebsiella pneumoniae (shown in pink). CC-BY 2.0. NIAID. Bio 2192 Tablet Visual Guide Unit 1 Microbiology Computer Use and Laboratory 2 Microscope use and cell length calculations Field size calculation / Cell size assessment (video) Unit 3 3 Growth, aseptic inoculation & streak insulation unit 4 streak insulation from secale and simple stains Unit 5 Differential stain technique: Gram Stain (Autumn/Spring Chapter) Differential stain technique: Gram Stain (summer chapter) Unit 6 Dual key to acid-fast bacteria, Candida albicans (Yeast), Endospores. Inclusion organs, capsules and Flagella unit 7 Sturdy selective and differential media chocolateagar (video) with TSA blood (video) MacConkey (video) Unit 8 Oxygen use unit 9 Carbohydrate fermentation unit 10 Protein catBolism Unit 11 Microbial blood tests Catalan test (Video) Coagulase (Video) Unit 12 Susceptible of bacteria to antibiotics and antibiotics Introduction to bacterial identification unit 13 Identification of unknown bacteria Unit 14 Chemical substances. Inhibiting Bacterial Growth Unit 15 Bacteriological Analysis of Milk Gram(+)/Gram(-) Results Gram(+)/Gram(-) Results KeyMicrobiology Laboratory Manual by Karen Z. Bentz, Heather Fitzgerald, Patricia G. Wilber is licensed under the Creative Commons Attribution-NonCommercial 4.0 International License. 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The Appendix contains a safety agreement that each student must sign and submit to the supervisor at the beginning of the semester. This manual was created to partially fill out a grant from the Affordable Learning Georgia Textbook Amendment Initiative of the Georgia University System. Special thanks to Sara Selby for editing and photography. Available files with optical character recognition (OCR) and automatic tagging provided by the Center for Inclusive Design and Innovation. Microbiology for Allied Health Students This work is licensed under the Creative Commons Attribution 4.0 license. Biology of the University of Georgia | Medicine and Health Sciences Smith, Molly and Selby, Sara, Microbiology for Allied Health Students: Laboratory Manual (2017). Biological sciences Open textbooks. 16. 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