

Pathology

An Industrial Training Report submitted
for the partial fulfillment of the Degree of Bachelor of Science

By

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[B.Sc. (Biotechnology), Semester VI]



Under the supervision of

Dr. Sanjay Patel

Shree pathology laboratory

DEPARTMENT OF BIOTECHNOLOGY
ATMIYA UNIVERSITY
‘YOGIDHAM GURUKUL’ KALAWAD ROAD RAJKOT
(GUJARAT) – 360005
2021-2022

CERTIFICATE



pathology laboratory
Home Collection : 98242 91144

dr. sanjay patel
SHREE
pathology laboratory

Certificate

This is to certify that *Mr./Ms. Isha Hingorajiya*.....
Enrollment no *200601014*..... of B. Sc. Microbiology ^{Biotechnology}
Semester 6 of Atmiya University has joined internship/training
at *Shree Pathology Laboratory*.....
during dated *05/09/2022* to *20/02/2023*... This is also certified
that he/she has completed minimum ~~72~~ ¹²⁰ hours of internship/training
during above mentioned period.

Marks:

Remarks:

DR. SANJAY PATEL, M.D. (Path)
SHREE PATHOLOGY LABORATORY
101, Balaji Complex,
Vidyanagar Main Road,
Below Aastha Children Hospital,
RAJKOT - 360001 (GUJARAT)

14/3/23

Date

Signature of the Trainer/In-charge with stamp

Dr. Sanjay Patel
M. D. (Path)
Consultant Pathologist

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below aastha child hospital, rajkot 360001
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Under the best circumstances, no test is having 100% sensitivity & 100% specificity. Any particular laboratory test result may be misleading (not correlation with clinical findings) for large varieties of reasons, regardless of high quality of laboratory. So, individual laboratory investigations should not be considered as conclusive and should be used along with other relevant clinical examinations to achieve the final diagnosis. These reports are for the referring clinician only. The reports are not valid for medico legal purpose/forensic application.

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DECLARATION

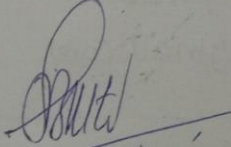
I hereby declare that the work incorporated in the present internship report entitled “pathology ” is my own work and is original. This work (in full) has not been submitted to any University for the award of any Degree or a Diploma.

Date:

DECLARATION

This is to certify that Mr./Miss Isha mansukhbhai hingarajiyai of Atmiya University, Rajkot, registered in B.Sc. _____ Biotechnology _____ program has undergone training from (date) 05/09/2022 to 20/02/2023 under my supervision.

I also certify that the above-mentioned evaluation of the trainee has been furnished by me.



Name and Signature of the Trainer
(with seal)

Any Additional Comment or Feedback for the Trainee:

ACKNOWLEDGEMENT

Thanks God, to the merciful and the passionate, for providing us the opportunity to step in the excellent world of science. To be able to step strong and smooth in this way, we have also been supported and supervised by many people to would like to express our deepest gratitude.

The laboratory work was done in the microbiological testing laboratory.

Guidance helps us during the writing of this project.

I find no words that can acknowledge tremendous support that our parents made to ensure that we had an excellent education.. I wish our sincere thanks to him our MD Mr. Sanjay Patel for their valuable guidance in our work.ct

Finally, I consider this as an opportunity to express my gratitude to all dignitaries who have been involved in successful completion of our project work.

Isha M. Hingarajiya

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1. ABSTRACT

Pathology is the study of diagnosis of disease or injury. It involves wide intellinked spectrum of bioscience. There are two major division in pathology and several sub Division.

1. Anatomical pathology : it involves study of tissues. Organ and even the whole body. It involves chemical , microscopic and macroscopic evaluation of tissue , organ and even the whole body to identify and treat the disease .it is further deivided into several sub division .the major one being.
2. Cytology : study of cells to diagnose a disease . usually helps in diagnosis of cancer.
3. Surgical pathology : it is the analysis of tissue or organ removed surgically from a patient it is used to diagnose disease such as cancer, lipoma, cryst, infection of microbes and etc.
4. Forensic pathology : it is the analysis of a cadaver to estimate the precise time and cause of death. It is used to check if the person was under the influence of any drugs or even if the cause of death as overdosing of drugs.
5. Clinical pathology : is a field of study through which we diagnose and anaiyze disease and disorders using tissues of our body and fluids produced by human body. It requires knowledge in many field like biochemistry ,microbiology , hematology and etc.

It is a very crucial in the medical field as it is most often the primary step in treating a patient . as it gives information an identification of the disease the patient is suffering from take the necessary protocol to treat him efficiently.

The test done are performed in a lab or a medical center. The tests usually require a wide array of equipment and chemicals .the tests are carried our by trained professionals who can use the equipment correctly to produce accurate test results.there are many division of clinical pathology some of are ...

1. Collection
2. Hematology
3. Microbiology

2.INTRODUCTION

Pathology is the study and diagnosis of disease through examination of organs, tissues, bodily fluids, and whole bodies

Father of pathology : virchow

About Laboratory:

A laboratory is a facility that provides controlled conditions in which scientific or technological research, experiments, and measurement may be performed.

It gives students first-hand experience and offers better opportunities for learning. A laboratory is not a contest whose object is to get the “right answer”, but the purpose is to learn how to gain knowledge, how to observe and to learn the meaning of what happens. **It gives students first-hand experience and offers better opportunities for learning.**

A laboratory is not a contest whose object is to get the “right answer”, but the purpose is to learn how to gain knowledge, how to observe and to learn the meaning of what happens. The culture of that lab was so peaceful and all workers nature was very cool and helpful for each other.

NAME:

Shree pathology laboratory
Dr. Sanjay Patel

Affiliation of the person :

I mailed my collage report and visit hospital and meet doctor. First like trainer I behave with his calm with lab work and all instruments and also prepare with intension. Take a moment to prepare and focus my attention before greeting a patient. I listen intently and completely her all advice for the my Internship. He always agreed on what matters most important in my knowledge for laboratory skill improvement. He teach me like all behavior with how get report from patient and how connect with the patients. And other most explore emotional cues. And that all staff members support me adequately position. I like his nature.

Nature :

The career of a pathologist is about researching and analyzing various disease and their nature . A pathologist is a medical health care provider who examines bodies and body tissues. he is also responsible for performing lab test . Helps other health care providers reach diagnoses and is an important member of the treatment team. He has good communication skill and his nature is very calm and cool . He gave all questions answer very intelligently . He helps us in every test .

2.1. Aim:

>To provide accurate, specific and sufficiently comprehensive diagnoses to enable the treating physician to develop an optimal plan of treatment.

>To provide the knowledge ,technical skill and experience necessary for residents to competently practice anatomic and clinical pathology.

3. MATERIAL AND METHOD

Materials:

Microscope

Centrifuge Analyzer

Incubator

Blood collection tubes

Micro cover slips

Microscope

glass slides

Anti A

Anti B

Anti D

Cotton

70% alcohol

Crystal violet

Iodine solution

Safranin solution

Method :

laboratory methods are based on established scientific principle involving biology, chemistry and physics

4. RESULT AND DISCUSSION

1. Blood group test:

There are 4 main blood group defined by ABO system: A,B,O and AB

Blood sample mixed with antibodies against type A and B blood. Then, the sample is checked to see whether or not the blood cells stick together. If blood cells stick together, it means the blood reacts with one of the antibodies.

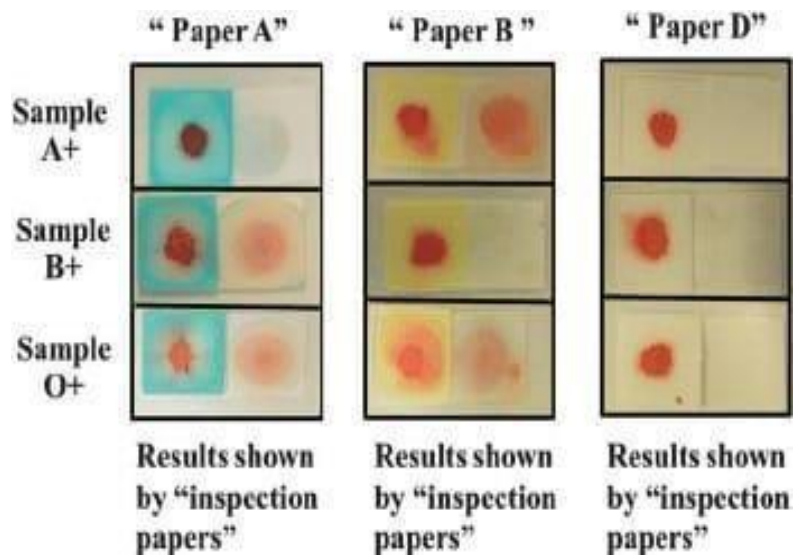
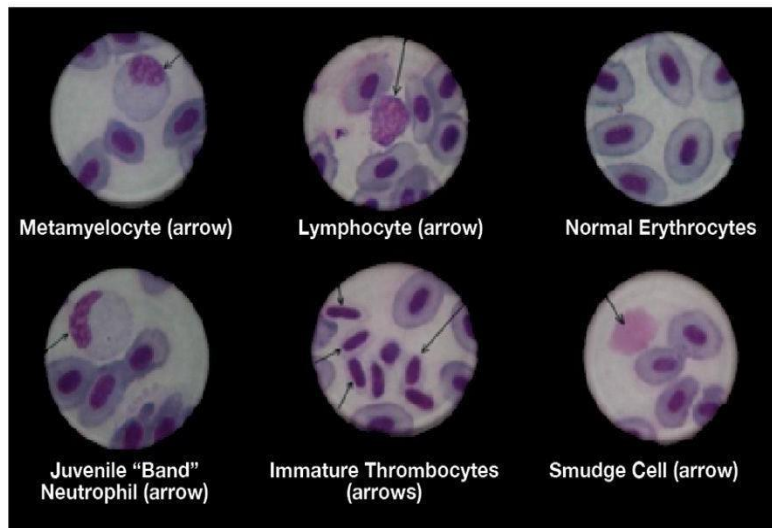


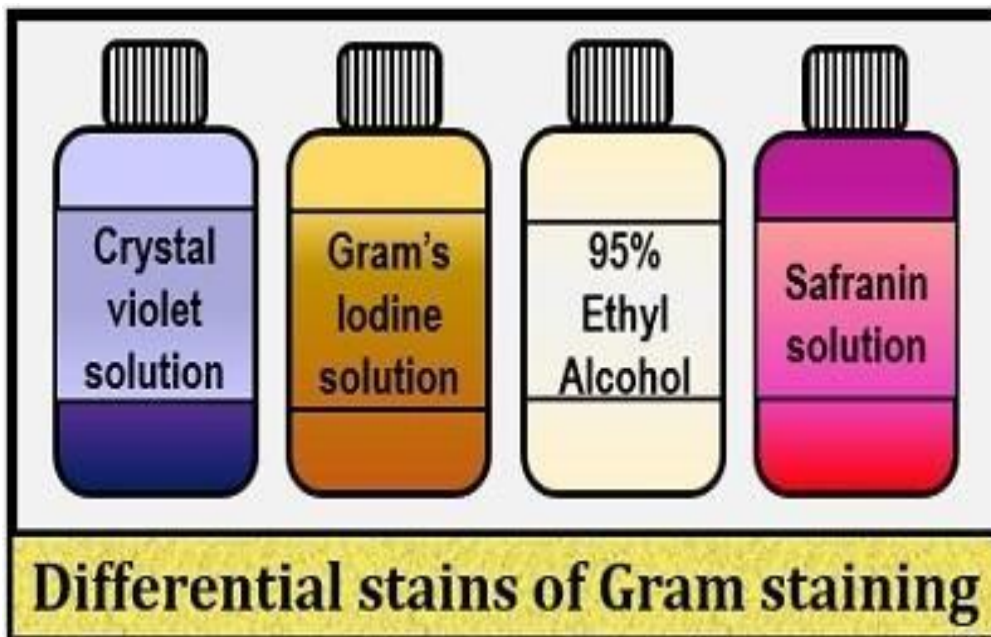
TABLE 18.1 Blood Groups and Donor Compatibility

Blood Group	Antigens on RBCs	Antibodies in Plasma	Donor's Group
A	A	anti-B	A, O
B	B	anti-A	B, O
AB	A, B	nil	AB, A, B, O
O	nil	anti-A, B	O



2.GRAM STAINING:

Gram staining involves the ability of the bacterial cell wall to retain the crystal violet dye during solvent treatment. Gram-positive microorganisms have higher peptidoglycan content, whereas gram-negative organisms have higher lipid content.



Results:

The results of the Gram stain are viewed using light microscopy. Because the bacteria are colored, not only is their Gram stain group identified, but their shape, size, and clumping pattern may be observed. This makes the Gram stain a valuable diagnostic tool for a medical clinic or lab. While the stain may not definitely identify bacteria, often knowing whether they are gram-positive or gram-negative is sufficient for prescribing an effective antibiotic

3. Acid fast staining:

The acid-fast stain is a laboratory test that determines if a sample of tissue, blood, or other body substance is infected with the bacteria that causes tuberculosis (TB) and other illnesses.

When the smear is stained with carbol fuchsin, it solubilizes the lipoid material present in the Mycobacterium cell wall but by the application of heat , carbol fuchsin further penetrates through lipoid wall and enters into cytoplasm. Then after all cell appears red.

4.Creatinine test:

A measure of how well your kidneys are performing their job of filtering waste from your blood.

Creatinine exits your body as a waste product in urine. Solution of creatinine is prepared in 0.1N HCl and the PFF of serum is obtained by addition of fresh tungstic acid.

5.Blood glucose test:

A blood glucose test measures the glucose levels in your blood. A hormone called insulin helps move glucose from your bloodstream into your cells.

6.SGPT test: (Serum Glutamic Pyruvic Transaminase)

perform to measure the enzyme created in the liver called alanine transaminase (ALT). ALT is measured to check for any liver damage or disease prevalence.

7.CRP test: (C-reactive protein)

You may need this test if you see symptoms of a bacterial infection like, fever, rapid heart rate, rapid breathing etc.

8.IgE, IgG test:

this tests are done to look for some kind of allergies.

9.TSH test: (Thyroid-stimulating hormone)

used to find out hoe well your thyroid is working. It can tell if you have hyperthyroidism or hypothyroidism in your blood. It doesn't saw what is causing a thyroid problem

10. Albumin test:

The test can help determine if you have liver disease or kidney disease, or if your body is not absorbing enough protein.

11. Urine routine test:

This test is used to monitor diseases like kidney diseases, diabetes, urinary tract infections. Also performed before surgery, for drug analysis and pregnancy checkup.

12.HIV test:

Three types of HIV test like, antigen test, antibody test, nucleic acid test. For detection of HIV antibodies a rapid chromatographic immunoassay(rapid test strip) is used

13.Ferritin test:

used to check iron levels in the blood.

14.CBC test: (complete blood count)

A procedure in which a sample of blood is viewed under a microscope to count different circulating blood cells (red blood cells, white blood cells, platelets;etc.) and see whether the cells look normal. Category: Hematological Disorders.

15.Dengue test:

used to find out if you have been infected with dengue virus.

5. CONCLUSION

I have gained good experience at laboratory. I have learnt how to handle laboratory situation in any condition . it was such a excellent training experience. This training has improved me a lot. I am glad to finished this practical successfully and got a lot of knowledge. during work in this laboratory we experienced that how to work with doctors, lab technicians and staff. Also learned that how to operate some automated machines , how to work with this machine , how to communicate with patients. to help find better ways to recruit and retain these valuable professionals.

6. REFERENCE

1. rapid review pathology by Edward F.Goljan
2. Oxford handbook of clinical pathology