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INSTRUMENT STANDARD OPERATING PROCEDURE MANUAL

College of Medicine

SAFETY AND LABORATORY COOMMITTEE, C.O.M, K.F.U.

Prepared by

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Document History

Document Section	Details of Amendments	Date	Modified by (Initials)
SOP	First Draft on SOP for the operation of **Olympus BX 51 System Microscope**	**22.11.2020**	

1. OBJECTIVE

- The document describes the operation of **Olympus BX 51 System Microscope. Teaching and research compound tri-ocular microscope.**

2. SCOPE

- ☐ **Teaching and research compound tri-ocular microscope.**
- ☐ **Complete with viewing station, digital camera DP 20 (5 million pixels camera).**
- ☐ **Software for the digital camera (Micro Suite) which allows to print multiple images, to add objects / text to the image, to perform and save measurements, and log and save text files associated with the images in a searchable database**

3. RESPONSIBILITIES

- ☐ It is the responsibility of designated personnel in Research lab to train staff and students on this procedure and to ensure adherence to this procedure under supervision.
- ☐ It is the responsibility of designated personnel (staff or Student) to follow the instructions of this procedure under supervision.

4. REFERENCES

- ☐ **Olympus BX 51 System Microscope manual**

5. DEFINITIONS

a. Base :

- Voltage indication
- Light intensity preset switch
- Filters.

b. Focusing block:

- Fine adjustment knob
- Coarse adjustment knob
- Pre-focusing lever.

c. Stage:

- Placing specimen
- Adjusting the X and Y axis Knob tension.
- Rotating the stage.
- Adjusting the stage height.

d. Observation Tube;

- Adjusting the interpupillar Distance
- Adjusting the Diopter
- Using the Eye Shades
- Using Eye piece Micrometer Disks
- Selecting the light path
- Adjusting the Tilts.

e. Condenser

- Centering the condenser
- Compatibility of Objectives and Condensers (magnification 1.25X , 2X ,4X, 10-60 X AND 100X)

f. Immersion objectives

- Using immersion objectives

g. Objectives with Correction Collar

h. Light bulb: (12V100WHAL(PHILIPS 772) - 12V50WHAL-L(LIFE JC)

6. SAFETY PRECAUTIONS

- ☐ Install the microscope on a sturdy ,level table or bench so not to block the vents
- ☐ Allow ample free space around or above the lamp housing to avoid the hotness during operation.
- ☐ Route the power cord away from the lamp housing to avoid power cord melting or electric shock.
- ☐ When replacing the light bulb ,set the main Switch OFF the disconnect the power cord
- ☐ Microscope fuse should replace by the manufacturer.
- ☐ Always use the power cord provided by Olympus.
- ☐ Always ensure the grounding terminal of the microscope and that of the wall outlet are properly connected.
- ☐ Never insert metallic objects into air vents (result in electric shock, personal injury and equipment damage).

7. PROCEDURE FOR OPERATING Olympus BX 51 System Microscope

7.1. Turning on the instrument:

Switch ON the System.

- ☐ Remove the microscope cover.
- ☐ Turn on the halogen light switch
- ☐ For transmitted light to “I” (ON).
- ☐ Check the light path. The light path selector knob should be pushed in all the way.
- ☐ Adjust the light intensity using the brightness adjustment knob
- ☐ The numerals to the right of the lamp voltage indicator LEDs
- ☐ indicate the voltage.

7.2. Software Operation.

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7.3. Steps of the Procedure

a- Adjust the interpupillar distance.
b- While looking through the eyepieces, adjust oculars until the left and right fields of view coincide completely.
c- Make sure the 10x objective is in place.
d- Place the slide with your specimen on the stage and hold it with the specimen holder
e- Find your specimen using the stage controls
f- Focus specimen using fine/course focusing knobs
g- Adjust the diopter :Close your left eye and focus on the specimen using the fine focus knob.
h- Close your right eye and focus on the specimen using the diopter ring on the left ocular.
i- Open both eyes and confirm that the focus is comfortable. .
j- If desired switch to the next objective by rotating the nosepiece and focus.
k- Continue until you reach the desired magnification.
l- Establish Koehler illumination: - Close field iris diaphragm until you can see the edges.
m- Focus the image of the field iris diaphragm by raising or lowering the condenser using the condenser height adjustment knob
n- Check if the circle of light is centered in the field of view. If not, use the two condenser centering screws to move the field iris diaphragm image to the center of the field of view.
o- Open the field iris diaphragm until its image circumscribes the field of view. –
p- Match the opening of the condenser aperture iris diaphragm with the N.A. of the objective in use in order to achieve the optimum objective performance.
q- Examine specimen and document image if necessary.

7.4. Turning off the Instrument

1-Lower the stage by turning the focus knob towards you and remove the slide with your specimen from the stage.

2-Turn the nosepiece back until the 10 x. objective is into place.

3-If the100x objective was used, clean the lens carefully with lens paper ONLY.

4-Turn the light intensity down using the brightness adjustment knob.

5-Turn off the halogen light switch (1) to “0” (OFF).

6-Cover the microscope.

7-Turn off the software.

8-Turn off the electric main power source.

9-Turn off the main switch

10-Leave the room CLEAN and TIDY!