



PHARMA DEVILS

PRODUCTION DEPARTMENT

STANDARD OPERATING PROCEDURE

Title: Cleaning, Calibration and Operation of Microscope

SOP No.:		Department:	Microbiology	
		Effective Date:		
Revision No.:	00	Revision Date:		
Supersede Revision No.:	Nil	Page No.:	1 of 5	

1.0 OBJECTIVE:

To lay down procedure for cleaning, calibration and operation of Microscope.

2.0 SCOPE:

This SOP is applicable for Microscope, Model No. - Myscope beta - 0006698, Make - Labovision used in microbiology laboratory.

3.0 RESPONSIBILITY:

Prepared by - Executive Microbiology

Checked by - Assistant Manager Microbiology / QC

Approved by - Head QA, QC

4.0 PROCEDURE:

4.1 Operation

4.1.1 Connect the plug of the instrument to the power supply and switch 'ON' the power supply.

4.1.2 Switch 'ON' the microscope using switch provided at the base of the microscope.

4.1.3 Adjust the brightness of the light by turning the knob.

4.1.4 Adjust the condenser by raising or lowering it.

4.1.5 As a general rule the height of the condenser varies according to -

4.1.5.1 The objective - Low Power - Screwed down low.

4.1.5.2 High Power - Raised fairly high.

4.1.5.3 The nature of the specimen whether thick or thin, stained or un - stained.

4.1.5.4 Thick, darkly stained tissue - relatively high and vice versa.

4.1.6 Fix the slide (specimen) in position on the mechanical stage.

4.1.7 Turn the low power (10X) objective in to position. Make sure it has clicked in to the position.



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- 4.1.8 Adjust the observation head to convenient position.
- 4.1.9 Gradually raised the mechanical stage till the objective is almost touching the slide.
- 4.1.10 Then looking down the eyepiece and using the coarse adjustment knob lower the mechanical stage so as to bring the object roughly into focus.
- 4.1.11 By using the fine adjustment knob bring the object sharply in to focus.
- 4.1.12 If necessary make adjustments with the condenser and iris diaphragm.
- 4.1.13 If the high power objective is to be used, rotate the nosepiece until the high power objective occupies the position of the low power objective. Then use the coarse and fine adjustment knobs to focus the objective. Then focus by adjusting the condenser (raising it) and the diaphragm.
- 4.1.14 If a cover slip is necessary it should be very thin or else it may not be possible to bring the objective close enough to focus the object
- 4.1.15 Use of oil immersion lens -**
- 4.1.15.1 After focusing the object under low power, turn the nosepiece and put the oil immersion objective in place.
- 4.1.15.2 Place a drop of oil (cedar wood oil) on the slide.
- 4.1.15.3 Gradually raise the mechanical stage till the oil drop touches the objective and just flattens it, without touching the object itself.
- 4.1.15.4 During this procedure the objective should be viewed from the side with the eyes on level with the slide.
- 4.1.15.5 Now look down the ocular and slowly lower the mechanical stage by means of the coarse adjustment knob until the object is just in view.
- 4.1.15.6 Then using the fine adjustment knob brings the object in to focus.
- 4.1.15.7 Note - 100 X object is used only as an oil immersion lens.

4.2 Cleaning

- 4.2.1 Switch off the microscope and remove its power cord from the main switch.
- 4.2.2 Cleaning is to be done by using soft cotton cloth.
- 4.2.3 For cleaning the 100X oil immersion objectives (which should be done immediately after use), only use xylene.
- 4.2.4 Now plug the power switch in the power socket and switch it on.

4.3 Calibration



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- 4.3.1 Use stage micrometer slide having calibrated vernier scale of 10 divisions of 10 microns each. Scale - 1 division - 0.01 mm.
- 4.3.2 Place the stage micrometer slide on stage.
- 4.3.3 Focus it with the lowest objective i.e. 4x.
- 4.3.4 Capture the image on computer and save it with identification label.
- 4.3.5 Similarly use other objectives to save the image of individual magnification power i.e. 10x - 40x and 100x respectively.
- 4.3.6 Now the folder is ready with scale "X" [Horizontal Scale].
- 4.3.7 The calibration is to determine scale X versus Y i.e. Horizontal scale versus Vertical scale.
- 4.3.8 To store the vertical image, open the same horizontal image to appear on the screen.
- 4.3.9 Select from the menu 'Image' and select to rotate 90° from the sub-menu.
- 4.3.10 Save the vertical scale image with the identification label.
- 4.3.11 Now select the 'Measurement' from the menu.
- 4.3.12 Select 'Calibration' from the sub-menu of 'Measurement'.
- 4.3.13 The calibration window will open and shall demand 'Load horizontal image'.
- 4.3.14 Click on the 'Load horizontal image' and select the saved horizontal image of lowest magnification i.e. 4x.
- 4.3.15 Enter the calibration name, preferably specifying the magnification objective for easy identification.
- 4.3.16 Specify the scale mode i.e. micron.
- 4.3.17 Now drag the cursor over a known value of the scale and enter the value in the scale - X box. For e.g. if the cursor is dragged over the 10 division. of the scale, enter 100 (scale mode selected is micron).
- [The scale ratio is 1 division = 10 micron.]
- 4.3.18 Now to further process the calibration, click the 'Load vertical image' and select the saved vertical image of the same objective.
- 4.3.19 Again drag the cursor over a known value of vertical scale and enter the value in scale-Y box.
- 4.3.20 Save the calibration and observe the confirmation on the screen.
- 4.3.21 Repeat the same procedure for all other remaining objectives.



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4.3.22 Record the calibration record as per Annexure - I.

4.4 Frequency

Frequency for calibration of Microscope is once in a month or when change the computer on which the software is loaded.

5.0 SAFETY & PRECAUTIONS:

- 5.1 Avoid microscope to motion and shocks.
- 5.2 Avoid microscope to direct exposure to sunlight, high temperature and humidity, dust and vibrations.
- 5.3 Before replacement of bulb, unplug the power cord from the power supply.
- 5.4 Only use the tension adjustment ring for altering the tension of the coarse adjustment knobs.
- 5.5 Do not touch the lens surface with dust/finger prints.

6.0 REVISION HISTORY:

Revision No.	Reason for Revision	Superseded from & Date
00	First Issue	-----

7.0 REFERENCES:

Not applicable.

8.0 ABBREVIATIONS:

SOP : Standard Operating Procedure
mm : Millimeter

9.0 ANNEXURES

Annexure - I : Calibration record of microscope

