DEPARTMENT OF BIOTECHNOLOGY

17BTCC89- IMMUNOLOGY LABORATORY

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Bioprocess Lab/ Immunology lab
Purpose	To describe the procedure for the operation and maintenance of the Magnetic Stirrer
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the Magnetic Stirrer in the Bioprocess lab/ Immunology laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HOD/Biotechnology

STANDARD OPERATING PROCEDURE FOR MAGNETIC STIRRER

- Place the magnetic stirrer on a stable well-levelled surface.
- Place the stir bar at the bottom of a glass container.
- Fill the glass container with the liquid to be stirred.
- Plug the mains cable into a suitably earthed socket.
- Check that the speed control knob is completely turned anticlockwise.
- Place the glass container on the centre of the magnetic stirrer.
- Press the On/Off switch to turn the magnetic stirrer On. The switch will light green.
- Adjust the speed control knob to a low stirring rate.
- Continue to adjust the speed control knob until the desired stirring speed is achieved.
- Wait until the liquid is properly mixed.

- Completely turn the speed control knob anticlockwise.
- Press the On/Off switch to turn the magnetic stirrer Off
- Manipulate another stir bar from the outside of the glass container to remove the immersed stir bar

PRECAUTIONS TO BE FOLLOWED

- Thoroughly wash the stir bar with distilled water after each application.
- Store stir bars in pairs to maintain their magnetic strength and increase their life span.

RECORD TO BE MAINTAINED

- Laboratory Manual containing the experiments that can be performed with the equipment
- Maintenance Record

HOD

DEPARTMENT OF BIOTECHNOLOGY

17BTCC89- IMMUNOLOGY LABORATORY

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Bioprocess Lab/ Immunology lab
Purpose	To describe the procedure for the operation and maintenance of the Hot air oven
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the hot air oven in the Bioprocess lab/ Immunology laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HOD/Biotechnology

STANDARD OPERATING PROCEDURE FOR HOT AIR OVEN

- Load the sample material on the trays provided with in the oven, close the door.
- Connect the plug to the power source and switch on the power supply.
- The temperature sensor will maintain the set temperature which is indicated by the blinking on the display screen.
- Set required temperature (100ºC-250ºC) using course and fine adjustment.
- The duration of the time can be adjusted using time adjustment knob.
- After completion of sterilization and drying, switch off the main button and the power supply.

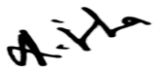
PRECAUTIONS TO BE FOLLOWED

- Wipe the surface and wall of the hat air oven with dry lint free cloth. There should

not be dust particles in the oven.

RECORD TO BE MAINTAINED

- Laboratory Manual containing the experiments that can be performed with the equipment
- Maintenance Record



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DEPARTMENT OF BIOTECHNOLOGY

17BTCC89- IMMUNOLOGY LAB

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Bioprocess lab/ Immunology lab
Purpose	To describe the procedure for the operation and maintenance of the cooling centrifuge
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the cooling centrifuge in the Bioprocess lab/ Immunology lab, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HOD/Biotechnology

STANDARD OPERATING PROCEDURE FOR COOLING CENTRIFUGE

- Open the upper lid by releasing the lock and lifting it up.
- Place the centrifuge tubes in the compartment provided for it.
- Switch on the main button.
- Set the desired time can be selected by pressing "SET TIME" by push button having range 0-60 minutes.
- Set the desired temperature can be set by adjusting knob.
- Increase the RPM of the centrifuge with the help of the adjustment knob.
- Gradually increase the rpm. Maximum 15000 rpm can be selected.
- When the desired rpm attained, now selected the time for centrifugation with the help of set time push button.

- After completion of the centrifugation time, a buzzer will beep, which indicates the completion of the cycle.
- After the beep, the motor will automatically off and rpm will come down to 0.
- Switch off the mains and remove the samples from the centrifuge.
- Clean the in wall of the centrifuge with dry lint free cloth.

PRECAUTIONS TO BE FOLLOWED

- Proper handling of the instrument.
- Ensure level and stability.
- Balance centrifuge tubes equally.
- Ensure use of rubber cushions for glass tubes.
- Bring speed knob to off and increase speed gradually.
- Do not open the lid in between the centrifugation cycle.

RECORD TO BE MAINTAINED

- Laboratory Manual containing the experiments that can be performed with the equipment
- Maintenance Record

HOD

DEPARTMENT OF BIOTECHNOLOGY

17BTCC89- IMMUNOLOGY LABORATORY

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Bioprocess lab/ Immunology lab
Purpose	To describe the procedure for the operation and maintenance of the Digital Incubator
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the Digital Incubator in the Bioprocess lab/ Immunology lab laboratory, Vinayaka Missions' Research foundation
Responsibility	Faculty i/c of the facility, HoD/Biotechnology

STANDARD OPERATING PROCEDURE FOR DIGITAL INCUBATOR

- Ensure that the incubator is properly connected to the power supply and Switch on the main
- Turn on the red colour power knob towards 0-1.
- To set the incubator at 22°C , set the lower temperature 21°C by pressing the 'SET POINT -1' and simultaneously adjust the temperature with the help of screw of SET and RST by screw driver.
- Set the incubator temperature to 22°C. Wait till the set temperature is reached.
- Take a calibrated thermometer and dip it in a 500 ml beaker filled to 3/4 of the volume with Glycerol AR grade.
- Keep the beaker inside, at the center of the incubator. Close the incubator door. Allow the temperature to equilibrate for 30 minutes.

- By following the same procedure as above carry out calibration by setting the incubator temperature to 37°C, 44°C and 55°C
- Record any discrepancy observed during operation or during temperature monitoring to Quality Control Executive and notify the defect to technical assistant for rectification. Affix “BREAK DOWN” label on the instrument

PRECAUTIONS TO BE FOLLOWED

- Ensure that the power supply to the incubator is switched ‘OFF’.
- Dedust the incubator daily externally with a clean dry cloth.
- Once a week remove adhered dust by wet mopping using detergent solution. Afterwards wipe the surface with a clean dry cloth to remove traces of detergent.
- Once in a month clean the interior surfaces with 2.5 % savlon solution using a clean cloth

HOD

DEPARTMENT OF BIOTECHNOLOGY

17BTCC89- IMMUNOLOGY LABORATORY

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Bioprocess lab/ Immunology lab
Purpose	To describe the procedure for the operation and maintenance of the Water bath Incubator Shaker
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the Water bath Incubator Shaker in the Bioprocess lab/ Immunology laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HoD/Biotechnology

STANDARD OPERATING PROCEDURE FOR WATER BATH INCUBATOR SHAKER

- Fill and check the water level, if required fill purified water to the acceptance level. The minimum water level is indicated by a black line on the water level indicator on left
- Switch "ON" the ring both by pressing "ON/OFF" switch
- The digital temperature controller cum indicator will indicate the actual temperature of water
- Set the desired temperature by pressing the PRESS to SET switch and adjusting the SET pot

Approximately 1°C before the set temperature, the heater will start going on and off Heater action is indicated by the LED on the DTC. Allow a few minute for the temperature to stabilize

PRECAUTIONS TO BE FOLLOWED

- Do not operate without water
- Switch OFF when the instrument is not in use

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DEPARTMENT OF BIOTECHNOLOGY

17BTCC89- IMMUNOLOGY LABORATORY

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Bioprocess lab/ Immunology lab
Purpose	To describe the procedure for the operation and maintenance of the Centrifuge
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the Centrifuge in the Bioprocess lab/ Immunology laboratory, Vinayaka missions' Research foundation
Responsibility	It is the responsibility of Lab – In-charge of the lab to train Lab Assistant and students on this procedure and to ensure adherence to this procedure. It is the responsibility of the students/technicians to follow the SOP as described and to inform the Lab In-Charge about any deviations or problems that may occur while performing the procedure.
STANDARD OPERATING PROCEDURE FOR CENTRIFUGE	
• Press the start/stop button and slowly increase the rpm to the desired speed using the dial • Once a run is complete, make sure the rotor has COMPLETELY STOPPED before opening the centrifuge lid by depressing the red stop/start button.	

- Remove sample vials.
- Remember to return the rpm dial back to zero after finishing.

PRECAUTIONS TO BE FOLLOWED

- Proper handling of the instrument
- Ensure level and stability
- Balance centrifuge tubes equally
- Ensure use of rubber cushion for glass tubes
- Bring speed Knob to off and increase the speed gradually.
- Do not open the lid in between the centrifugation cycle

RECORD TO BE MAINTAINED

- Laboratory Manual containing the experiments that can be performed with the equipment
- Maintenance Record

HOD

DEPARTMENT OF BIOTECHNOLOGY

17BTCC89- IMMUNOLOGY LABORATORY

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Bioprocess lab/ Immunology lab
Purpose	To describe the procedure for the operation and maintenance of the florescent microscope
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the florescent microscope in the Bioprocess lab/ Immunology laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HoD/Biotechnology

STANDARD OPERATING PROCEDURE FOR FLORESCENT MICROSCOPE

- Turn on main power switch
- Wait for a minute or until the green light above the main power switch turn on.
- Rotating the light intensity adjustment knob in the direction of the arrow increases and rotating knob in the opposite direction decreases brightness. The intensity bar next the knob indicate the direction of intensity level.
- Rotate the coarse adjustment knob in anticlockwise directions to fully lower the stage.
- Open the bow shaped lever outward by pullingon lever handle, place the speciemen by sliding the specimen glass plate on the stage from the front toward the slide seat at the rear.
- After positioning your specimen slides, Use the low magnification lens and bright field first to find the area of interest and focus.

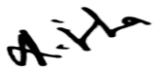
- Then use the stage position control to move the sample stage and find the area of interest (X and Y adjustment).
- After get clear image of the area of interest, you can click “FLUO” then choose correct filter for your sample dyes.
- After image adjustment click, “Acquire image” at the bottom of the control window to take photo.
- After finish the fluorescence imaging taking, turn the light back to the bright field, switch the objective to the lowest magnification and remove your sample.
- Turn off the microscope and main power.

PRECAUTIONS TO BE FOLLOWED

- After microscope has been used for the observation of a specimen containing bacteria, clean all the parts coming in contact with the specimen.
- Be sure to remove the specimen before moving this product.
- In case the specimen is damaged by erroneous operation, it is important to clean all the surface that may have come in contact with the specimen.
- After operation of microscope, be sure to disconnect power cord from connector socket of the microscope or from the wall power outlet.

RECORD TO BE MAINTAINED

- Laboratory Manual containing the experiments that can be performed with the equipment
- Maintenance Record



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DEPARTMENT OF BIOTECHNOLOGY

17BTCC89- IMMUNOLOGY LABORATORY

STANDARD OPERATING PROCEDURE

Name of the Lab./facility	Bioprocess lab/ Immunology lab
Purpose	To describe the procedure for the operation and maintenance of the Electronic Weigh balance
Scope	This Standard Operating Procedure (SOP) applies to the staff and students using the weigh balance in the Bioprocess lab/ Immunology laboratory, Vinayaka missions' Research foundation
Responsibility	Faculty i/c of the facility, HOD/Biotechnology

STANDARD OPERATING PROCEDURE FOR ELECTRONIC WEIGH BALANCE

- Switch ON the Power button
- Keep the butter sheet or aluminum foil, Press TARE to equivalence the weight
- Add the chemicals on to the butter sheet and weigh it accurately
- Wear clean cotton gloves (supplied with reference weights) or use forceps while handling reference weights. To avoid depositing oil and dirt onto the surface of the weight, do not touch weights with bare hands.
- Store reference weights in cases provided by the manufacturer.
- For optimal performance, place balance on a stable, even, horizontal surface with minimal vibration. Avoid areas with excessive heat and moisture, direct sunlight, aggressive chemical vapors, and drafts.
- If a balance is transferred to a different location, perform the accuracy check prior to use in the new location.

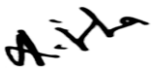
- Switch OFF the power button

PRECAUTIONS TO BE FOLLOWED

- Short circuit of the battery terminals or any source terminals has to be avoided.
- Avoid spilling of chemicals
- Clean the spilled chemicals/powders immediately to avoid deposition.
- Avoid over weighing, above the limit
- As it is air sensitive, handle with care
- Perform annual calibration of weigh balances at approximately the same time each year

RECORD TO BE MAINTAINED

- Laboratory Manual containing the experiments that can be performed with the equipment
- Maintenance Record



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