SACRED HEART COLLEGE (AUTONOMOUS)

Tirupattur–635 601, Tirupattur District, Tamil Nadu

BIOCHEMISTRY & MICROBIOLOGY LABORATORY [BML]

LABORATORY SAFETY GUIDELINES

LABORATORY SAFETY GUIDELINES

Plan Your Work

- Before conducting any experiment, you should access the hazards related to the work, including; what are the worst possible things that could go wrong, how to deal with them, and what are the prudent practices, protective facilities and equipment necessary to minimize the risk of exposure to the hazards.
- Always know the hazards of the materials used (e.g., corrosivity, flammability, reactivity, and toxicity).
- Inspect equipment and apparatus for weaknesses, cracks or damage before beginning work.
- Inspect electrical equipment and cords for frayed wiring or damage before use. Discard or repair damaged equipment before use.

Personal Protective Equipment:

Personal protective equipment is used in the laboratory to protect ourselves when working with chemical hazards. Examples: laboratory coats, footwear, gloves, and mask.

Laboratory Coats:

- The primary purpose of coats is used in the laboratory to protect against splashes and spills.
- In the laboratory coats should be non-flammable and easily removable. Laboratory coats should be buttoned when in use.
- We should not be wear laboratory coats, gloves, or any other personal protective clothing outside of laboratory areas.

Footwear:

- Shoes must be worn in the laboratory at all times, regardless of the performance experimental works and use leather shoes which is

completely protects the toes, heel and top of foot provide the best general protection.

Gloves:

- Gloves are required for routine laboratory practical to protect the hands when the handling chemical, physical, or biological hazards that can enters in to the body through the skin and it is important to wear the proper protective gloves that is made up of polyvinyl or other non-latex gloves are an acceptable alternative for people with latex allergies.
- Certain glove materials provide better protection against particular reagent and hazards chemical. Nitrile gloves, offer a wider range of compatibility with organic solvents than do latex gloves.

Mouth Pipetting:

- Mouth pipetting is never being allowed, using only rubber teat (Bulb) or used automated micropipette.

Hair:

- Hair must be tied back.
- Do not wear jewelry and loose/ baggy clothing.

Chemical Safety:

- Never touch, taste or smell of chemical unless instructed to do so.
- Don't mix the chemicals unless instructed to do so.
- Keep the lids on chemical containers when there is not in use.
- Pencils, pen or any other materials should never be placed in your mouth.
- Don't eat food/drink water in the laboratory. Never use glassware as food/water containers.

Protect your hands safety:

- Wash the hands after every laboratory works/practical and handle glassware sharp tools and heated containers carefully.
- Do not engage in laboratory practical jokes/horseplay.
- Keep the non-essential books and clothing far away from your work area.

Accidents:

- Reporting to all accidents including the minor incidents to your instructor immediately.
- Caution must be taken off the burner when the practical work is completed.

Mask:

- The face masks are a partial cover for the face used for protection.
- It provides protective covering for nose and mouth.
- Face masks generally used in biomedical research laboratories are called dust masks.
- These masks are the white disposable kind with two elastic bands, one that goes to above the ears and the other below the ears.
- The dust masks block most of large airborne particles and pathogenic microorganisms.
- They are often used when weighing out powders and during any occupational works.
- There are many different kinds of dust masks; therefore, know the limitation of the protection and wear the proper mask suitable for the job.

Handling Glassware:

- Breakage of glassware is the common cause of injuries in laboratories works.

- Clean all glassware before using laboratory experimental works. Protect hands with latex gloves.
- Tests may lead to erroneous result if dirty glassware is used. Use glassware should be washed with water.
- Commonly used glassware beaker, test tube, conical flask, volumetric flask, measuring cylinder, pipette, reagent bottles etc.

Electrical:

- Electrical equipment should not be touch with wet hands.
- Do not disable laboratory any electrical safety features.
- Repair should be done by authorized persons.
- Do not leave equipment switched on when not in use.

Work Space:

- Work space must be kept neat at all times and before leaving the laboratory all equipment and apparatus must be properly kept in shelves.

Waste Disposals:

- After completion of laboratory experiment unwanted material must be discarded in designated containers.

First Aid Box in Laboratory:

- Skin burns should be washed under running water or ice water and petroleum jelly or burn ointment should be applied and then covered with sterile gauze.
- Any blister formed must not be punctured.

- Chemicals injury to the eyes must be treated by through washing with water.
- In accidental swallowing of chemicals, the mouth must be thoroughly rinsed with water.
- Contamination with infected material in wounds caused by broken glassware must be thoroughly rinsed with water and washed with soap solution before applying antiseptic solution.

Fire Extinguisher:

- The fire extinguishers in the laboratory areas should be inspected on a regular basis.
- Periodically check the date on the fire extinguisher to make sure that the extinguisher is full and the extinguisher is in good working condition.

Exhaust Fans:

- The laboratory area should be well ventilated and for this, exhaust fans must be fitted near the ceiling of laboratory for speedy removal of waste chemical gases to keep the laboratory free from dust polluted air.

GOOD LABORATORY PRACTICES:

- Cleanliness is essential for biochemical experiment. Work area must be clean. Make sure that all equipment and lab ware it must be clean before use. Clean the working area equipment and lab ware after use.
- Laboratory work area must be free from unwanted reagent.
- Proper storage of chemicals must be done.
- All the reagents must be neatly labeled. Do not contaminate reagents by using used/dirty pipettes for taking the reagent.

- Do not contaminate chemicals by using used/dirty spatulas (in case of solids) for taking out the chemical.
- Do not contaminate stoppers of reagent bottles and put the stoppers of bottle immediately after using reagents.
- Returns the reagent bottles to their respective shelf immediately after use so as to avoid accidental breaking of bottles on the working bench.
- Throw solids in the waste bins if it is necessary to pour strong acid or alkali into the sink, run water freely to wash it away.
- All equipment should be handled with extreme care and learn the correct operating procedure for each instrument before using it.
- keep the instrument in working order after its use
- Fire extinguishers and first aid box must be available in the laboratory.
- All glassware must be sterilized to prevent infections.

Assistant Director,
Biochemistry & Microbiology Laboratory,
Sacred Heart College,
Tirupattur-635 601. Vlr.Dt.