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<b>DOCUMENT TITLE</b>	<b>PAGE</b>	<b>1/5</b>
<b>DECONTAMINATION OF REUSABLE EQUIPMENT / TOOLS / SURFACES USED CONTAMINATED WITH LMO</b>		


# DECONTAMINATION OF REUSABLE EQUIPMENT / TOOLS / SURFACES USED CONTAMINATED WITH LIVING MODIFIED ORGANISM (LMO)

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<b>DOCUMENT TITLE</b>	<b>PAGE</b>	<b>2/5</b>
<b>DECONTAMINATION OF REUSABLE EQUIPMENT / TOOLS / SURFACES USED CONTAMINATED WITH LMO</b>		

#### REVISION HISTORY

<b>Revision Number</b>	<b>Revision Date</b>	<b>Description of Amendment / Change</b>

 <b>INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA</b>	<b>DOCUMENT</b>	
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<b>IIUM-KOS-SOP-45</b>	<b>REVISION DATE</b>	<b>12/12/2022</b>
<b>DOCUMENT TITLE</b>	<b>PAGE</b>	<b>3/5</b>
<b>DECONTAMINATION OF REUSABLE EQUIPMENT / TOOLS / SURFACES USED CONTAMINATED WITH LMO</b>		

## 1. OBJECTIVE


The contaminated materials with LMO must be disposed of properly from the laboratory. However, reusable items such as glassware, equipment, tools, and surfaces can be decontaminated to be used again. Decontamination activities are compulsory to avoid any problems or further contamination during laboratory activities.

## 2. SCOPE

This SOP covers all procedures involving the decontamination of reusable equipment/tools/surfaces used during the activities in the Kulliyyah of Science Laboratories.

## 3. DEFINITION

1. IIUM - International Islamic University Malaysia
2. KOS - Kulliyyah of Science
3. IBBC - Institutional Biosafety and Biosecurity Committee
4. SOP - Standard Operating Procedure
5. SO - Science Officer
6. LMO - Living Modified Organism
7. BSC - Biological Safety Cabinet
8. HEPA - High-efficiency particulate absorbing filter
9. UV - Ultraviolet
10. PPE - Personal Protective Equipment

 <b>INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA</b>	<b>DOCUMENT</b>	
	<b>STANDARD OPERATING PROCEDURE</b>	
<b>DOCUMENT NO.</b>	<b>REVISION NO.</b>	<b>01</b>
<b>IIUM-KOS-SOP-45</b>	<b>REVISION DATE</b>	<b>12/12/2022</b>
<b>DOCUMENT TITLE</b>	<b>PAGE</b>	<b>4/5</b>
<b>DECONTAMINATION OF REUSABLE EQUIPMENT / TOOLS / SURFACES USED CONTAMINATED WITH LMO</b>		

#### **4. PREREQUISITES**

- 4.1 All laboratory users handling equipment/tools/surfaces in the laboratory must understand the procedures and adhere to the procedure. They must also wear suitable Personal Protective Equipment such as covered shoes, lab coats, rubber gloves, masks (when required), and goggles (when required).

Cross-reference with IIUM-KOS-SOP-40: Personal Protective Equipment Management

#### **5. RESPONSIBILITY**

- 5.1 All laboratory users shall be responsible to comply with this safe operating procedure.


#### **6. PROCEDURES**

- 6.1.1 Decontamination of surfaces contaminated with LMO used during the activities:

- a) Wipe all the work surfaces with alcohol (70% ethanol) to kill any microorganisms on the surface.

- 6.1.2 Decontamination of glassware/ tools/ equipment contaminated with LMO:

- a) Ensure the glassware/equipment/tools are cleaned physically before using them.
- b) The preferred method is autoclaving (121°C for a minimum of 25 minutes).
- c) Chemical disinfection (e.g., treatment with household bleach or 70% ethanol) may also be carried out as deemed appropriate or necessary in some cases.
- d) For non-disposable inoculation loops, micro-burners or electrical 'furnaces' may be used to sterilize the loops.
- e) If UV light is to be used to disinfect glassware/tools/equipment, refer and adhere to the guideline to use ultraviolet light as below:
  - i. Turn on the BSC fan 10 minutes after operating the UV lamp before commencing work.

 <b>INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA</b>	<b>DOCUMENT</b>	
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<b>IIUM-KOS-SOP-45</b>	<b>REVISION DATE</b>	<b>12/12/2022</b>
<b>DOCUMENT TITLE</b>	<b>PAGE</b>	<b>5/5</b>
<b>DECONTAMINATION OF REUSABLE EQUIPMENT / TOOLS / SURFACES USED CONTAMINATED WITH LMO</b>		

- ii. Weekly checking on UV lamps should be done with a UV meter to ensure that the appropriate intensity of UV light is being emitted.
- iii. UV lamps must be turned off when the room is occupied with protecting the eyes and skin against UV exposure, which can burn the cornea and cause skin cancer.
- iv. Use the UV Safe (UV-resistant polycarbonate panel) to close the cabinet before turning on the UV lamp.

#### 6.1.3 Proper work etiquette handling LMO:

- i. Active work should flow systematically from clean to contaminated areas across the work surface.
- ii. Arms should be moved in and out slowly, perpendicular to the front opening, to minimize disruption of the air curtain and laminar flow.
- iii. Work as far to the back as possible but within comfortable reach.
- iv. Always use pipetting aids. Mouth pipetting is not allowed.
- v. Heat sources, such as Bunsen burners, are strictly prohibited inside the BSCs as they significantly disrupt the laminar flow of air.
- vi. Do not work in a Biological Safety Cabinet (BSC) while a warning light or alarm is signalling.
- vii. After completing the work, all equipment and supplies from the BSC should be decontaminated and removed from the cabinet.
- viii. The interior surfaces should be wiped with disinfectant (70% ethanol) to kill any microorganisms in the cabinet.

## 7. REFERENCE

- 7.1 Biosafety, D. O. (2010). Biosafety Guidelines Contained Use Activity of Living Modified Organism. Putrajaya, Malaysia: The Ministry of Natural Resources and Environment Malaysia.
- 7.2 Responsible, P., Investigator, P., & Person, D. (2015). Department of Environmental Health & Safety.
- 7.3 IIUM-KOS-SOP-40: Personal Protective Equipment Management

## 8. APPENDIX

N/A.