

B. INSTITUTIONAL BIOTECH LABORATORY

Institutional Biotech Hub was initially functioning and established in 2012 with funding from the Dept. Biotechnology (New Delhi). The Hub was established to serve as a platform for teaching and undertaking research. Since its introduction, Hands-on training and teaching were given to students as well as faculty members on the latest techniques in biotechnology. A number of outreach programs had conducted for Higher Secondary School students. Till date, the Hub is functioning smoothly and is being used for research works by teachers and also for conducting practical classes. Several facilities were procured through this project for conducting basic routine experiments.

This centre was sponsored by Department of Biotechnology, New Delhi vide sanction letter No. BT/22/NE/2011 dated 30.11.2011. The followings part-time personnel were engaged in the Hub.

- Coordinator: Laltanpuia, Head, Dept. of Biochemistry
- Assistant Coordinator: Dr. R. Lalengmawia, Head Dept. of Botany
- One JRF: Goldy K. Lalmangaihi
- One SRF: Dr. PC. Lalrinfela

1. The followings are the equipments sanctioned in the Hub

Sl No.	Name of the equipment	Model No. & Brand Name	Cost in Rupees
1	UV Spectrophotometer	Bio-Spectrometer Basic (Eppendorf)	3,67,500.00
2	College PCR Package (PCR Leader Bundle) inclusive of the following items:	Eppendorf (package)	4,99,800.00
	Centrifuge Mini-Spin		
	PCR Mastercycler Personal + PCR tubes		
	Pipettes (20 µl + 200 µl) with tips		
	Electrophoresis apparatus Elpho Kit with power pack		
	UV Transilluminator with Camera		
3	Microwave Oven	MH-2548QPS (Brand LG)	10,590.00
4	Digital Balance	Citizen	26,000.00
5	pH Meter	Elico	14,000.00
6	Laptop Computer	Core i5 (Dell)	41,000.00
7	Magnetic stirrer with hot plate	Systronics	7,400.00
8	Micropipette (0.1-10 µl & 1000 µl) with tips	Tarsons	23,710.00
9	Autoclave	Ikon Upright	45,000.00
10	Hot Water Bath	Realtech	25,500.00
11	Micropipette 0.1 – 10 ul, 1000ul	Biohit	16,500.00
12	Micropipette 0.2 – 2 ul	Borosil	3,700.00
13	Micropipette 2 - 20 ul	Tarsons	5,100.00
14	Ph Meter	Deluxe	14,000.00
15	Weighing Balance	Wensar	55,000.00
16	10 KVA Online UPS	Better Power	2,50,000.00
17	Electrophoresis unit	Genei	7,775.00
18	PowerPack	Genei	6,500.00
19	Digital Anal Balance	Wensar	55,000.00

20	Deep Freezer	Relitech	47,000.00
21	Microscopes (3 nos.)	Olympus	40,590.00
22	Hot Air Oven	Relitech	28,800.00
23	Cooling Centrifuge	Remi	1,75,000.00
24	Vortex shaker	Tarson	8,950.00
25	Computer Projector	BenQ	46,900.00
26.	Soxhlete unit	Relitech	25, 000
27	Rotary Vacuum Flash Evaporator	Relitech	50,490.00

2. Faculties who had utilized Hub for PhD work

1. K. Zosangpuii Research scholar, Zoology dept. MZU
2. S. Thangrimawii, Research scholar, Zoology dept. MZU
3. Lalzahawmi Chenkual, Research scholar, dept of Environmental Science, MZU

3. Students who had utilized Hub for summer training

1. Ramluahpuii, 6th Sem, Zoology dept
2. H. Lalrinhlui, 6th Sem, Zoology dept
3. Lalremsiama, 6th Sem, Zoology dept
4. Jonathan Lalrinchhana, 6th Sem, Zoology dept
5. Samuel Lalrammawia, 6th Sem, Zoology dept
6. B. Lalnghahpuii, 6th Sem, Zoology dept
7. Annie Vanlalruati, 6th Sem, Zoology dept

4. Life Science students for carrying out practicals every semester

5. Main activities Biotech Hub:

5.1. Basic research under Biotech Hub

1. Analysis of banana varieties using RAPD markers
2. Characterization of resistance gene analogues in banana cultivars
3. Morphological and molecular characterization of chili landraces of Mizoram
4. Phytochemical analysis of selected medicinal plants of Mizoram

5.2. Organize Training programmes to College Teachers & students

The Biotech Hub of our college also organised a special workshop for college teachers on 'Techniques in Bio-technology and Bio-informatics' during 21-23 august 2013 in collaboration with Biotech Hub of Pachhunga University college and State Biotech hub, Mizoram university. Altogether, 28 participants from science colleges across the state participated in this workshop.

5.3. Outreach programmes to Higher Secondary School/College students

1. Biotechnology – Introduction & Application at Govt. Republic Higher Sec School, Aizawl organized by IBT Hub, GZRSC on 11th Sept, 2013
2. "Biotechnology – Introduction & Application" at Govt. JL Higher Sec. School, Aizawl organized by IBT Hub, GZRSC on 20th Oct, 2013
3. Biotechnology – Introduction & Application Staine's Memorial Sec. School, Aizawl organized by IBT Hub, GZRSC on 22nd Nov, 2013
4. An introduction to Biotechnology, applications and social implications at Govt. Zemabawk Higher Secondary School, Aizawl organized by IBT Hub, GZRSC on 5th Dec, 2014
5. One day seminar with Hands-on Training on 'Advance in Biotechnology' at Govt. Kolasib College on 27th Feb, 2015
6. Seminar on "Recent trends and prospects in Biotechnology" at Govt. Zirtiri Residential Science College, Aizawl on 28th Feb. 2015

7. One day seminar cum Hands-on Training on ‘Advances in Biotechnology’ at Lunglei Govt. College, Lunglei on 13th Mar, 2015

Fig:



Outreach activity on Advances in Biotechnology at Govt. Lunglei College on 13th March, 2015

6. List of Papers produced from Institutional Biotech Hub

1. Biotechnology: an introduction, its application and social implication. K. Vanlalmangaihi and Laltanpuia (2015). Sci. Vis. 15:S23-S29. ISSN: 0975-6175 [New Indexing: 48:05:11]
2. Analysis of genetic variation among banana genome groups of Mizoram Using randomly amplified fragment length polymorphism (RAPD) marker. PC.Lalrinfela, Laltanpuia, R. Lalengmawia and Robert Thangjam (2015). Sci. Vis. 15:S6-S12. ISSN: 0975-6175 [New Indexing: 48:05:11]
3. Isolation and characterization of resistance gene analogues (RGAs) from banana cultivars of Mizoram, India. Pachuau Lalrinfela, Laltanpuia, R. Lalengmawia and Robert Thangjam (2015). In: Current Trends of Biodiversity Research in Mizoram (H Lalramnghinglova, Vanramliana, H Lalthanzara eds.). 242-255pp. ISBN: 978-81-287-0012-5.

Institutional Biotech Hub has been providing a platform for conducting experiments by students since established in the college. The parental department, Biochemistry is taking role in maintaining the equipments and other relevant responsibilities. Though the project funding had already ended in 2016, the laboratory is still one of the fundamental platforms for life science students in carrying out practicals every semester. It offers convenience to the students as well as teachers for conducting prescribed syllabus practicals and related research experiments.

7. Future activities and proposed action plan:

- The awareness program for biotechnology and its application in various Higher Secondary Schools.
- Providing a platform for theoretical and practical knowledge on the modern issues in the field of Biotechnology for College students through Biotech Hub
- Make more use of Biotech Hub equipments for research purpose including PhD works and collaborative research activities.

8. Conclusions

- The growing Biochemistry and Biotechnology in life sciences has created demand on availability of affordable scientific instruments to cope with problems.
- Establishment of Biotech Hub in the college progressively mitigates students and professors in carrying out practicals and mini project (which usually provided to students for 20 days as summer training).
- As a part of extended laboratory, the life sciences students and professors make avail of equipments as per the demand, and the parental Biochemistry department is also looking forward to make it more convenient in conducting join-research for better utilization and cultivation of qualitative efficiency in teaching and research in the new college campus.