

REPORT OF THE DBT SPONSORED WORKSHOP ON
“Gas Chromatography-Flame Ionizing Detector”

Conducted on 3rd & 4th November 2023



ORGANISED BY

Department of Biotechnology

In collaboration with

Department of Chemistry, St. Edmund's College, Shillong.

Sponsored by

Department of Biotechnology, Government of India
(Under Advanced Level Biotech Hub)

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ACKNOWLEDGEMENTS

The Workshop was held at Advanced Level Biotech Hub, Department of Biotechnology, St. Edmund's College, Shillong — would not have come to fruition had it not been for the guidance and *enthusiasm* of **Dr. Samrat Adhikari**, Head, Department of Biotechnology, and **Dr. Sumit Deb**, Head, Department of Chemistry, St. Edmund's College, Shillong.

I am also thankful for the support of **Br. (Dr.) Simon Coelho**, Principal, St. Edmund's College, Shillong.

The four Resource Persons — Dr. Samrat Adhikari (Head, Department of Biotechnology, St. Edmund's College), Dr. Khrawborlang Nongsiej (Faculty, Department of Chemistry, St. Edmund's College), Ms. Barihun Thyрниang (Research Associate, NRL Project) and Ms. Shibange Paul (Research Associate, NRL Project) — delivered a well-received presentation and demonstration, which accommodated the students' rudimentary understanding of the *workshop* in the field of Science and hands on training with GC-FID.

The dedication of the students of different colleges in attending the workshop which was external to their syllabus- regimented learning, is highly appreciated.

Resource Persons



Dr. Samrat Adhikari, PI & Head, Department of Biotechnology, St. Edmund's College, Shillong.



**Ms. Barihun Thyрниang
Research Associate, NRL
Project**



**Ms. Shibange Paul
Research Associate, NRL
Project**



Dr. Khrawborlang Nongsiej, Co-PI & Organizing Secretary, Department of Chemistry, St. Edmund's College, Shillong

GENERAL INFORMATION

Title of the Course: “Gas Chromatography-Flame Ionizing Detector”

Date of Workshop: 3rd & 4th November 2023

Timing of Workshop: 9 A.M Onwards

Total No of Students Participated: 27

Workshop Coordinator: Dr. Khrawborlang Nongsiej

External Speakers Involved: Nil

WORKSHOP STRUCTURE:

The subsequent sub-section will highlight various aspects of the Workshop, the Programme, interactions, data analysis, data interpretation, questions and answers & feedback etc.

a. Programme of the Workshop:

This workshop was divided into three sessions. These sessions were presented by Dr. Khrawborlang Nongsiej, Dr. Samrat Adhikari, Ms. Barihun Thyrniang and Ms. Shibange Paul. The programme of the workshop is listed in the table below:

Session	Topic	Presenter	Date
I	“Chromatography: A technique for mixture separation” & “Introduction to GC-FID”	Dr. Khrawborlang Nongsiej & Dr. Samrat Adhikari	3 rd November 2023
II	“Sample preparation for GC-FID analysis”	Ms. Barihun Thyrniang & Ms. Shibange Paul	3 rd November 2023
III	“Hands On Training with GC-FID”	Ms. Barihun Thyrniang & Ms. Shibange Paul	4 th November 2023

DAY 1

The workshop was graced by both of our beloved Vice Principals, Dr. (Capt) K.P Pallavi Malhan and Mr. Monotosh Chakravarty in the presence of our Dean, Dr. B. W Nongbri, and not to forget our HOD, Dr. Samrat Adhikari Sir.

The workshop starts at 9:30 A.M with registering of the participants and then followed by Inauguration program hosted by Ms. Baiakmenlang Manner.

Dr. Jasmine Sawian, Head, Department of Environmental Science delivered a short and sweet speech, welcoming all the participants, the guests and the Resource Persons.

We also had a speech from both our Vice Principals, encouraging the participants to work hard and

take the time to attend such workshops which is of great importance for their future studies in understanding the realm and importance of Science and Technology, which helps them get exposed to a new type of technology that is available for Advanced studies.

The Inaugural program was concluded with Vote of Thanks from Ms. Shekinah Challam, thanking the Principals and participants of other colleges who took the time to attend the workshop which is external to their syllabus-regimented learning.

Session 1

The first session was divided into two parts, the first part was presented by Dr. Khrawborlang Nongsiej, Co-PI and Organizing Secretary, Department of Chemistry, emphasizing mainly on the topic of “Chromatography: A technique for mixture Separation”



Session by Dr. Khrawborlang Nongsiej



Session by Dr. Samrat Adhikari

The second part was presented by Dr. Samrat Adhikari, PI & Head, Department of Biotechnology, emphasizing mainly on the topic of “Introduction to GC-FID”.

Session 2

The second session was taken by Ms. Barihun Thyrniang and Ms. Shibange Paul emphasizing on sample preparation for GC-FID. The participants were divided into seven groups and the steps were taught and shown to the participants on how to prepare the sample using the process of Sonication and Evaporisation, and the sample that has been prepared are kept for Analysing and Interpretation the next day.



Sample preparation for GC-FID Analysis

DAY 2

Session 3



**Hands on Training with GC-FID
& Data interpretation of GC-FID
Results**

The sample that were already prepared now taken for analyzing and interpretation to the GC Room where the samples were injected into the Chromatograph for analysing. The analysing were done for one group at a time since there are a large number of participants. After the analysing, followed the data interpretation which might take some time to complete. When all is done, the participants were brought back to the Advanced Biotech Hub for Questions and Answers & Feedback Session.

Valedictory



**Speech by Sir Sumit Deb, Head, Department of
Chemistry**



**Speech by Vice Principal, Dr. (Capt) K.P Pallavi
Malhan**

At the end of the program, we had a Valedictory program under which we had a small session of briefing the two day workshop by Dr. Khrawborlang Nongsiej, followed by a speech from the Vice Principal, Dr. (Capt) K.P Pallavi Malhan and Vote of Thanks from Sir. Sumit Deb, Head, Department of Chemistry, thanking the participants, the colleges and everyone involved in the Workshop.



Distribution of Certificate to the Resource Persons

He also encourage the students of other colleges present on that day to come forward and visit the college for their needs and enquiries related to the workshop and many other related to Science and Technologies and the College will be there to help and guide them in any way that it can. He also encourage Dr. Samrat to organized many more such workshops in order to help and shape the future of the students as to make it easier for them as they go forward. Last but not least, at the

very end of the program we had a small session of Certificate distribution to all the participants and the Resource Persons along with a small gift as a token of appreciation to their commitment and dedication in attending the two day workshop.

b. Mode of conduct of the Workshop:

The workshop was held offline, over a period of two-days. We had Three technical session. Two sessions were taken on day one and one session on day two which consists of hands on training with GC-FID and data interpretation of GC-FID Results. The Workshop was coordinated by Dr. Khrawborlang Nongsiej, Co-PI & Organizing Secretary.

LIST OF REGISTERED PARTICIPANTS

Timestamp	Name of the Student	Department	Name of the College/Institution	Mobile no
10-18-2023 16:19:21	Sailin Dkhar	Biochemistry	Lady keane college	6009925079
10-18-2023 17:01:33	Chibame N. Marak	Biochemistry	Lady Keane, College	9774170426
10-18-2023 19:32:10	Shimti Mary Jana Nongbet	Biochemistry	Lady Keane college	8798963509
10-19-2023 13:36:00	Felicity kharwar	Biochemistry	Ladykean college Shillong	9863141580
10-19-2023 20:21:59	D. Badarisa Lyngkhoi	Biochemistry	Lady Keane College	9774502984
10-30-2023 12:06:42	BANRAPLANG NONGRUM	Zoology	Shillong College, Shillong.	9612871795
10-30-2023 12:13:07	Augustine H. Nongrum	Zoology	Shillong College, Shillong.	6033091351
10-30-2023 12:15:53	Banshai kupar Rymbai	Zoology	Shillong college	7640864323
10-30-2023 12:24:51	SIEWDORPAT LYNGKHOI	Zoology	Shillong College	9863127091
10-30-2023 13:11:29	KASSAR SUMER	Zoology	Shillong College	6009657606
10-30-2023 13:18:31	Hardy Jones Nongbet	Chemistry	Synod College, Shillong	9362909198
10-30-2023 13:30:11	Sevenstar Shangdiar	Botany	Synod College, Shillong	9862633234
10-30-2023 14:47:58	Melarihun Jeengaphs	Chemistry	Synod College, Shillong	8837443143
10-30-2023 15:14:05	Sharelywell wahlang	Botany	Synod College	9863111197
10-31-2023 10:12:03	Ashakiran D Rai	Biotechnology	St Edmund's	7630007013
10-31-2023 10:12:07	Chanshim Kashung	Biotechnology	St. Edmunds College	8258887484
10-31-2023 10:13:51	RAJDEEP PAUL	Biotechnology	St. Edmund's College	8011519786
10-31-2023 10:14:36	Bhaswati Chakraborty	Biotechnology	St. Edmund's College	9577650030

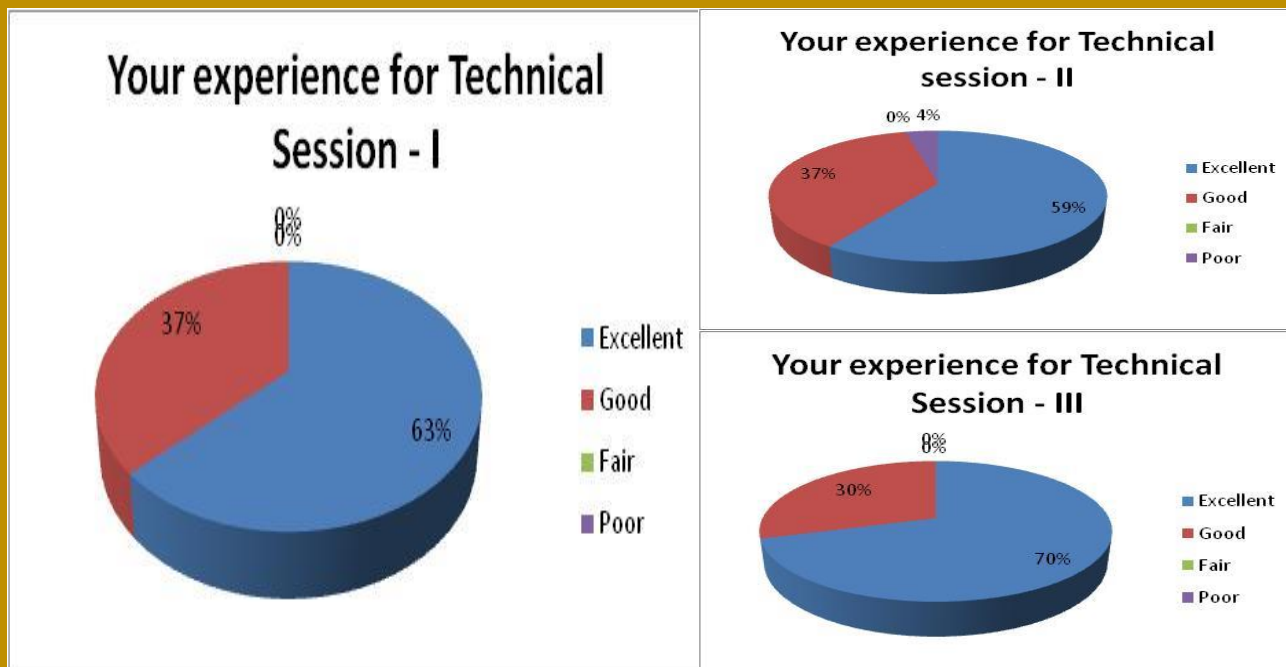
10-31-2023 10:14:46	Khusboo Sharma	Biotechnology	St. Edmund's college	7086494009
10-31-2023 10:14:59	Sushang Tamang	Biotechnology	St. Edmunds college	7085610753
10-31-2023 10:16:18	Jiphila Roidill Shabong	Biotechnology	St Edmund's College	8974132167
10-31-2023 10:18:20	Jasmine Sawian	Biotechnology	St. Edmund's College	7005366292
10-31-2023 10:19:09	Dani Monya	Biotechnology	St.Edmunds College	9366613371
10-31-2023 17:11:18	M LHINGNEIVAH HAOKIP	Biotechnology	St.Edmunds college	6009269875
10-31-2023 20:06:08	FAITHFUL L . NONGLAIT	Zoology	Synod College, Shillong	8837037772
11-1-2023 9:29:42	Nangerlang Rani	Zoology	Synod college Shillong	7972876720
11-1-2023 17:46:17	GIRISH ASHEM	Chemistry	St. Edmund's College, Shillong	9863472391



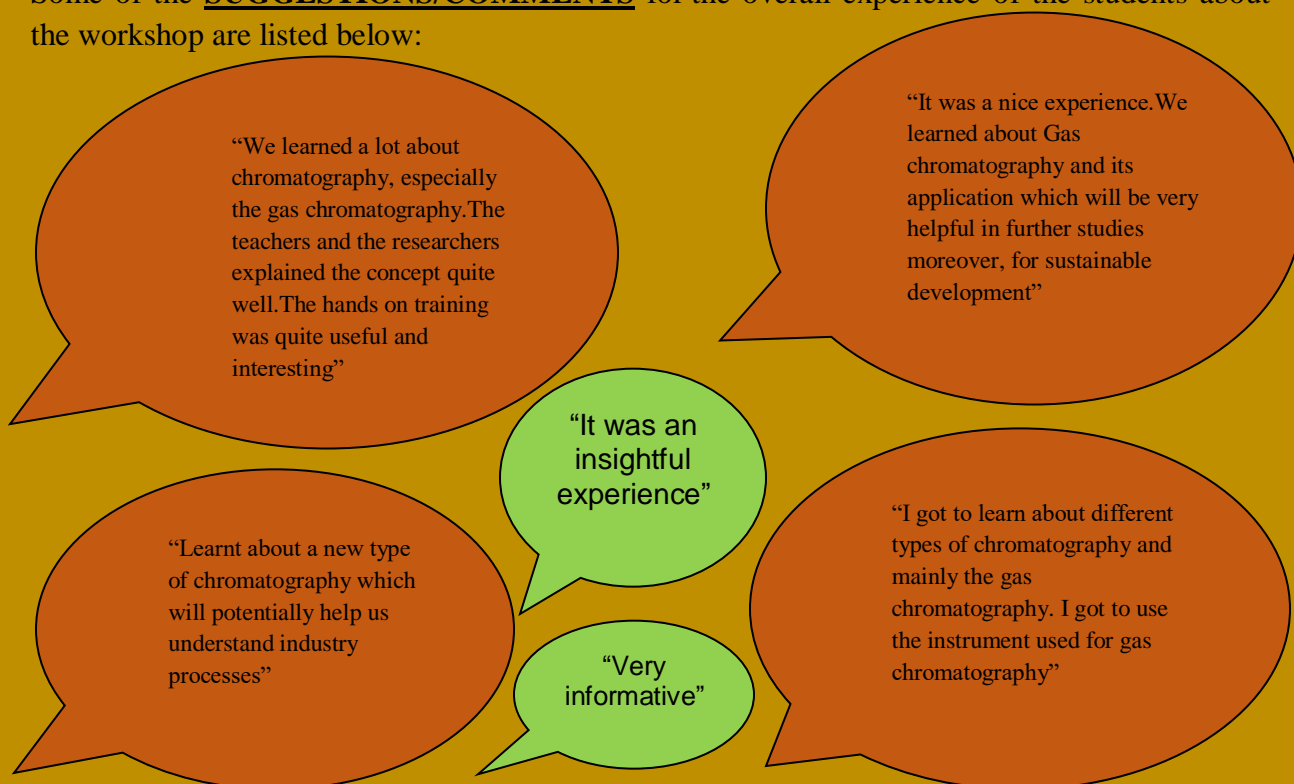
Group photo together with Two of Our Vice Principals

Feedback from the Students

Out of the 27 students who participated for this workshop, aII 27 responses were received through Google form. The analysis is depicted below:



Some of the **SUGGESTIONS/COMMENTS** for the overall experience of the students about the workshop are listed below:



"I m thrilled by the workshop. Its a very interesting topic and getting to know a bit of it is really amazing. I loved the way teachers have presented the slides and how the technicians explained us. Thank you."

"Thanks to the department of biotechnology of St Edmunds college for organising this two days training program which has help me a lot to know more and experience about this GC-FID and I'm looking forward for more opportunities with these kind of programs"

"I am very delighted for my exposure into new technologies so the workshop have met my expectations though it takes time."

Brochure



ADVANCED BIOTECHNOLOGY RESEARCH LABORATORY
St. Edmund's College

DBT SPONSORED WORKSHOP ON GC-FID

Gas Chromatography- Flame Ionizing Detector

 <p>FRIDAY 03 NOVEMBER 2023</p>	 <p>SATURDAY 04 NOVEMBER 2023</p>
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CLICK TO REGISTER

SCAN 

Organizing Secretary
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Department of Chemistry
St. Edmund's College, Shillong

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NO REGISTRATION FEE
OPEN TO 5TH SEMESTER LIFE SCIENCE STUDENTS
SEATS: 25

ABOUT GC-FID
GC with flame-ionization detection (FID) is widely used for lipids analysis. Sample preparation for this technique includes pre-separation of lipid classes, hydrolysis, derivatization, or pyrolysis. GC can also be used for direct separation of triacylglycerols based on the carbon number (CN). Analysis is normally performed at high temperatures on nonpolar or medium-polar low-bleeding columns. GC-FID has wide applications in Pharmaceutical, Food, petrochemicals etc industries

LIMITED SEATS, SELECTION BASED ON FIRST CUM FIRST SERVE