

Four Days Hands on training on Sustainable

Lemongrass harvesting, oil extraction and valorisation of waste

Jointly organized by Tripura University (Microbia Technology Group and Internal Quality Assurance Cell) and NBIRT (Arkaneer) Agartala with funding from Department of Science and Technology (under SEED Scheme)



Annexure 7

Four Days Training Program

Day 1

Date: 03-03-2025

Venue- Tripura University, West Tripura, India

Activities done during the day:

Inauguration session was started at 11 am and Ms. Chaitali Chanda hosted the session. First speech was given by Prof. Shaon Ray Chaudhuri (Principal Investigator), Tripura University; followed by Mr. Debashish Paul, Finance Officer, Tripura University; Mr. Kapil Baran Bhowmik, NBIRT Vice President. After that the standard cultivation manual was gifted to the Honourable guests. Then the resource person of the day Dr. Mandakini Gogoi has presented on Lemongrass and its diverse application. Lastly vote of thanks was given by Ms. Espita Palwan.

After the Inauguration session, lemongrass plantation procedure and biofertilizer application was demonstrated by Ms. Espita Palwan. After that harvesting of lemongrass was demonstrated by Mr. Subhankar Bhattacharya. Different parts of Indigenous steam distillation were demonstrated by Mr. Abinash Debbarma and Ms. Chaitali Chanda. Then the hydro-distillation method for lemongrass essential oil extraction method was demonstrated to the beneficiaries. Lastly, valorisation of oil extracted lemongrass through mushroom cultivation was demonstrated in the greenhouse facility of Tripura University.





Day 2

Date: 04-03-2025

Venue- Tripura University, West Tripura, India

Activities done during the day:

The second day of the training was conducted on 4th March, 2025. The training commenced at 11.30 am. On this day of training, the beneficiaries were shown how to extract lemongrass oil using indigenous steam distillation and using the Clevenger apparatus. The beneficiaries were also trained on using the lemongrass waste (as a result of distillation) for making hand-made paper. The indigenous steam distillation method was demonstrated by Mr. Abinash Debbarma, Phd Scholar, Department of Microbiology, Tripura University.

Ms. Sampili Debbarma, an MSc Student, and Ms. Chaitali Chanda, Research Scholar, Tripura University, showed how to make handmade paper using oil extracted lemongrass waste, Ramie decorticated waste and banana stem.



Day 3

Date: 05-03-25

Venue- NBIRT Agartala

Activities done during the day:

The program at NBIRT Agartala, was held on 05-03-25 as a part of the 4-day training program jointly organised by Microbial Technology Group, Department of Microbiology, Tripura University and NBIRT Agartala. The training program commenced with a short discussion about lemongrass cultivation, harvesting and oil extraction from lemongrass leaves which was initiated by Mr. Mohit Lal Acharjee with the beneficiaries after which the harvesting and oil extraction manual developed by NBIRT was handed over to the beneficiaries. The Project Associate and the Project Assistant working under the supervision of Prof. Shaon Rai Choudhury of the DST SEED project at Tripura University attended the training program.



The discussion was then followed by visit to the lemongrass oil extraction plant situated at Champamura Bazar road, Gokulnagar, Tripura. Mr. Anil then demonstrated the different parts of the oil extraction plant: the firewood chamber, the water chamber, the chamber where leaves are kept and also the condenser followed by the separator. It was noted that the leaves given were not cut into 2-3 cm pieces as done during the indigenous steam distillation at Tripura University and steam distillation was done instead of hydro-distillation. The steam-distillation took about 1.3 hours and the oil was then separated using the separator. The oil which was extracted was amber coloured.



Day 4

Date: 06-03-25

Venue- Arkaneer, NBIRT Agartala

Activities done during the day:

On this day the field trial of the biofertilizer was done. The field of application belonged to one of the beneficiaries of Arkaneer, NBIRT Agartala, named Mrs. Shanta Deb Das. A total of 30 beneficiaries and six attendees from Microbial Technology Group, Department of Microbiology, Tripura University including one field helper attended the program. The attendees from Tripura University were as follows-

- i. Mrs. Chaitali Chanda, Project Associate, DST Rapidex Project
- ii. Miss Espita Palwan, Project Associate, DST SEED Project
- iii. Mr. Abinash Debbarma, Research Scholar
- iv. Mr. SK Wasim Ahmed, Project Associate, IUAC Project
- v. Miss Soumya Samal, Research Scholar
- vi. Mr. Subhankar Bhattacharya, Project Assistant, DST SEED Project
- vii. Mr. Usha Bhowmik, Field helper

Furrowing was done from north to south direction and one part of the land was chosen for biofertilizer application and the other part of the land was chosen for control cultivation with 5 rows each. Soil sample was collected from the site on the same day. The distance between two furrows was maintained at 50cm.



At the place of biofertilizer application a total of 210 slips of lemongrass were planted and at the place of control a total of 187 slips were planted. The distance between two slips was maintained at 50cm.



A total of 94 litres of biofertilizer was applied in the designated area of the field and 81.14 litres of water was applied into the control region according to the calculated area of the respective regions. Both the biofertilizer and water were applied using a manual pump sprayer. Some of the beneficiaries had volunteered into spraying of biofertilizer and water on the field.



After the field application, a meeting was arranged by Arkaneer, NBIRT Agartala, which was presided over by Prof. S P Gon Choudhury, president of NBIRT where he interacted with the beneficiaries and addressed their queries regarding the selling price of the lemongrass leaves.

Total Beneficiary present
- 24

FOUR DAYS HANDS-ON-TRAINING
ON
SUSTAINABLE LEMONGRASS HARVESTING AND OIL EXTRACTION
[3rd to 6th March 2025]

Sponsored by:

GOVERNMENT OF INDIA
Department of Science and Technology

Organized by:

Tripura University (Central)
&
NB Institute for Rural Technology (NBIRT)

Attendance of the Participants / Beneficiaries
HASHINI SHG)

No.	Name of the Participants / Beneficiaries	Full Signature
1.	Smt. Gouri Bhowmik Das	Gouri Bhowmik Das
2.	Smt. Sampi Das	X
3.	Smt. Sulekha Rani Das	Sulekha Rani Das
4.	Smt. Gopa Das (Choudhury)	Gopa Das choudhury
5.	Smt. Arati Das	Arati Das
6.	Smt. Mallika Biswas	X
7.	Smt. Tultuli Das	Tultuli Das
8.	Smt. Saraswati Das	সরস্বতী দাস
9.	Smt. Maman Sarkar Das	Maman Sarkar (Das)
10.	Smt. Jhutan Deb	X
11.	Smt. Jamuna Das	Jamuna Das
12.	Smt. Sabita Das	Sabita Das
13.	Smt. Santa Deb Das	Santa Deb Das
14.	Smt. Mitali Rani Das	মিলালী রানী দাস
15.	Smt. Gita Chanda	গীতা চন্দা

(Debasmita Ganguly)
In-charge of the Training Coordinator, NBIRT

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Attendance of the Participants / Beneficiaries
SUGANDHI SHG)

Sl. No.	Name of the Participants / Beneficiaries	Full Signature
1.	Smt. Manju Biswas	Manju Biswas
2.	Smt. Suparna Majumder	—
3.	Smt. Litan Das	Litan Das
4.	Smt. Titu Rani Das	X
5.	Smt. Anima Sarkar (Biswas)	Anima Sarkar (Biswas)
6.	Smt. Radha Roy	Radha Roy
7.	Smt. Jayanti Sarkar	Jayanti Sarkar
8.	Smt. Maman Bhowmik Sarkar	Maman Bhowmik (Sarkar)
9.	Smt. Payel Choudhury	Payel Choudhury
10.	Smt. Shikha Choudhury	X
11.	Smt. Shiuli Biswas	Shiuli Biswas
12.	Smt. Shipra Biswas	Shipra Biswas
13.	Smt. Ganga Das	Ganga Das
14.	Smt. Mallika Bhowmik Das	Mallika Bhowmik Das
15.	Smt. Bulu Debnath	Bulu Debnath

(Debasmita Ganguly)

Sign. of the Training Coordinator, NBIRT

Total Beneficiary present → 31

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Date - 04.03.2025

(SUBHASHINI SHG)

Sl. No.	Name of the Participants / Beneficiaries	Full Signature
1.	Smt. Gouri Bhowmik Das	Gouri Bhowmik Das,
2.	Smt. Sampi Das	Sampi Das.
3.	Smt. Sulekha Rani Das	Sulekha Rani Das
4.	Smt. Gopa Das (Choudhury)	Gopa Das Choudhury
5.	Smt. Arati Das	Arati Das
6.	Smt. Mallika Biswas	Mallika Biswas
7.	Smt. Tultuli Das	Tultuli Das
8.	Smt. Saraswati Das	সারস্বতী দাস
9.	Smt. Maman Sarkar Das	Maman Sarkar (Das)
10.	Smt. Jhutan Deb	Jhutan Deb
11.	Smt. Jamuna Das	Jamuna Das
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5.	Smt. Anima Sarkar (Biswas)	Anima Sarkar (Biswas)
6.	Smt. Radha Roy	Radha Roy
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8.	Smt. Maman Bhowmik Sarkar	Maman Bhowmik (Sarkar)
9.	Smt. Payel Choudhury	Payel Choudhury
10.	Smt. Shikha Choudhury	
11.	Smt. Shiuli Biswas	Shiuli Biswas
12.	Smt. Shipra Biswas	Shipra Biswas
13.	Smt. Ganga Das	Ganga Das
14.	Smt. Mallika Bhowmik Das	Mallika Bhowmik Das.
15.	Smt. Bulu Debnath	Bulu Debnath

(Debasmita Ganguly)
Sign. of the Training Coordinator, NBIRT

16. Rakhi Sarkar Majumdar - Rakhi Sarkar Majumdar
17. Julekha Begam - Julekha Begam
18. Archana Das - Archana Das.
@ RPL

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* Archana Das → Archana Das.
* Evarani Laskar → Evarani Roy Laskar.
* Tulekha Begam → Tulekha Begam
* Rakhi Sarkar Majumder → Rakhi Sarkar Majumder

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6.	Smt. Mallika Biswas	Mallika Biswas
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2.	Smt. Sampi Das	
3.	Smt. Sulekha Rani Das	
4.	Smt. Gopa Das (Choudhury)	Gopa Das Chowdhury
5.	Smt. Arati Das	Arati Das
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(Debasmita Ganguly)

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* Rakhi Sarkar Majumdar → Rakhi Sarkar Majumdar

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Attendance of the Participants / Beneficiaries
(SUGANDHI SHG)

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5.	Smt. Anima Sarkar (Biswas)	Anima sar kar (Biswas)
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