

## **Four Days Training Program for Women Farmers on Lemongrass: from organic cultivation to product development**

### **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 4<sup>th</sup> 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.