



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE
www.sathyabama.ac.in

7.1.6 Quality audits on environment and energy are regularly undertaken by the Institution and any awards received for such green campus initiatives

- **Beyond the campus environmental promotion activities**

Centre for Waste Management, Centre of Excellence for Energy Research jointly with Centre for Aquaculture Sathyabama Institute of Science and Technology organized "An Awareness Programme on **"Popularization of Biodiesel for Fueling Fishing Boats"** commemorating World Biofuel Day on 10th August 2022 at Tsunami Quarters Karikkattukuppam Muttukadu. 25 fishermen returning after fishing enthusiastically participated the programme. Dr. Dawn S.S ,Professor (Research) Centre for Waste Management, explained about the various initiatives of the centre. The importance of biofuel and its role in Climate resilience was explained. Fishing boat fuel (Diesel) requirements per boat, frequency of fishing in a year and related information were gathered by the research team for further studies. The scheme of producing biodiesel from waste cooking oil and its benefits from environment, economy and efficiency points of view were explained. The participants were encouraged to fuel the boats with biodiesel in blends with diesel gradually from 1% - 10%. They showed keen interest and involvement in blending biodiesel with diesel and using the blends in their boats. The program ended with handing over of biodiesel to the fishermen as an encouragement to fuel their boats. The fuelling of the boats with biodiesel blends was announced and the participants eagerly welcomed the event planned to be convened on 17th August 2022.







Eco Club of Sathyabama Institute of Science and Technology joined hands with an NGO Environmental Foundation of India in **cleaning lakes in Sholinganallur** which is in the near vicinity of the Institute from 7 am to 10 am on 8-7-22. Around 40 club members actively collected the litter around the lake which was collected in gunny bags and properly disposed. This is an initiative to promote Swachh Bharat and to create awareness of water bodies pollution and the role each individual can play to for restoration .





Eco club of Sathyabama Institute of Science and Technology conducted **tree plantation** on the eve of Women's Day on 08.03.2023.





The ECO CLUB has conducted a Hands-on Workshop titled “Composting” on 16th July,2019 detailing on the about the best methods of Bio-Composting.



The Eco club students visited two of our institution adopted schools namely Panchayat Union Middle School at Thenmelpakkam and Government High School at Kumizhi and distributed the hand made seedballs to the school children on 21st March 2023.



On the occasion of puneet sankalp abhiyan the cadets of Sathyabama NCC has taken the Puneet sankalp pledge and committed themselves to prevent the spread of plastic pollution and support the Puneet Sagar Abhiyan in protecting the water bodies from plastic contamination. (a) All the cadets took the pledge in <https://pledge.mygov.in/puneet-sankalp/> and received the certificate of puneet Sankalp and organised a programme in Beach Cleaning in Marina – Chennai.

Under the Government initiative of Unnat **Bharat Abhiyan scheme (UBA)** Sathyabama has adopted Six Villages in and around the Chengalpattu and Kancheepuram and organize various outreach, extension and environmental promotion activities. In line with this scheme, **One-Student One-Tree program** was organized at Venkatapuram Village and School campus on 09.09.2022 and our students planted 40 trees in venktapuram Government school campus and given the awareness to the school children and villagers in the theme of “plant trees and save the global for the next generation”. 150 peoples in that village are benefitted.



Under UBA scheme, a series of tree plantation drives - Meri Maati Mera Desh Campaign were conducted, and awareness on maintaining a healthy environment was provided at Kumzhi panchayat village for school students and the village public on 18.08.22. 60 trees were planted in Kumizhi Government school campus and given the awareness to the school children and villagers in the theme of “Meri Maati MeraDesh Campaign series of tree plantation.The initiative aimed to protect the soil for the well-being of the upcoming generations. Around 80 students from Department of IT, Biomedical Engineering and NSS actively participated in this event. 200 peoples in the village are benefitted.





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Annual Report - Agri Innovation hub for holistic development of scheduled tribe population in Anaicut block in Jawadu hills, Vellore district, Tamil Nadu state.

By

Centre for Climate Change Studies
Department of Biotechnology
Department of Information technology

Supported by

Department of Science and Technology – New Delhi

Project title:

Project ref no: DST/SEED/TSP/STI/2021/466



Objectives

- To improve farm productivity and farm income using sustainable agricultural practices
- To enhance the market value of their produces through B to C model using digital marketing and E-commerce platform.
- Skill development and training programs for better employability.
- To create entrepreneurship opportunities to enhance livelihood.
- To provide better health care ecosystem and enable people who are deprived of basic health care facility.

MAY & JUNE 2022

On our visit to Peenjamandhai, Jarthankollai and Paallampattu panchayat on 23 May 2022. We visited the fields of Paallampattu, Jamunamarathur and Peenjamandhai to identify suitable land, water, for cultivating medicinal plant and little millet. An endangered medicinal plant *Decalepis hamiltonii* native to peninsular India was found in the records of Jawadhu hills through online database survey. The plant has a high market value (500Rs/kg) and is recommended for cultivation in the barren lands of Jarthankollai, Peenjamandhai, Paallampattu panchayat, Anaicut taluk Vellore district. As an initial step, saplings were purchased from Chittoor district and planted in a small scale at Paallampattu panchayat.



Fig: 1 *Decalepis hamiltonii* was planted in Paallampatu village

In association with agriculture department, Vellore district, seed kits comprising seeds of eight different vegetable crops along with 2 kg of vermicompost was distributed to the farming community of Peenjamandhai and Jarthankollai, Panchayat. In the meeting, agriculture officials introduced about battery operated hand sprayer and high yielding pulse variety to the farmers.



Fig: 2 Seed kit and vermicompost distributed to farmers

JULY 2022

1. In association with agriculture department and TAHDCO officers (Vellore district), conducted a program on (12.07.2022) at Peenjamandhai higher secondary school, based on establishment of our millet processing unit and its commercial advantages, honeybee unit and its processing, and explained the importance of medicinal plants cultivation and its uses.



Fig:3 Conducted program with TAHDCO

AUGUST 2022

Inauguration report

The inaugural ceremony of the Agri innovation hub was a huge success. The launch took place at No:119 Thekumarthur, Thongumalai post, Peenjamanthai panchayat, Anaicut taluk. Pin code: 632 103, on August 5 2022 at 10:00 A.M. Then the inaugural ceremony was commenced with the lighting of lamp by our honorable chief guest Mr. Kumara vel Pandian IAS at Vellore district. This Agri innovation hub machinery unit has been specially built for Schedule caste tribes who are economically backward and improve their livelihood.

1. Mr. Kumaravel Pandian was requested to give a speech in which he mentioned how to improve their farming activities based on the millets production and how to get by-products like cookies, health mix, etc.



2. Ms. Sidhika and Mrs. Preethi Seshadri formally welcomed all the dignitaries present on the dais and people from various villages of the hills and colleagues. She mentioned the significance of this project and it aims about bringing together a core group of people from all over the villages with significant participation in this project to improve their livelihood.

3. That was an unforgettable day for project members and tribal's peoples in Jawadhu hill, Anaicut Taluk, Vellore district.

That was the first step to success in this project and gave encouragement and support to achieve our project well in the future.

4. Many other notable guests like Mr. M. Babu (District chairman) and other government officials were also present and delivered their speeches about this project's scope and benefits to the tribal peoples. Our Chief guest Mr. Kumara vel Pandian distributed certificates for participating students in the basic Computer and handwash Program conducted at Peenjamandhai and Elandhapudhur School.



5. Through this Program we displayed the traditional varieties of Little Millet Collected from jawadhu hills, Medicinal plants like *Sphareanthus amaranthoides* benefits and its commercial uses, Honeybee box and its processing units, Biofertilizers and Digital marketing banner were displayed.

6. **Dr. Konga gopi krishna Scientist 'E' (DST) India** described the importance of this project and related fields and how they are interconnected for a long time. He motivated everyone to actively work on this project and get benefit.

In the end, **Dr. T. Sasipraba, Vice-chancellor** – Sathyabama institute of science and technology, addressed this project and its importance to tribal peoples and encouraged team members of this project to get success. She thanked all the guests and participants for gracing the occasion with their solemn presence. She also thanked DST for providing all kinds of facilities to conduct this program in the center.



SEPTEMBER 2022

In association with government officials like medical officer, revenue department, co-operative banks and agriculture department. We explained our Agri Innovation Hub project objectives and delivered the outcomes of the project till now.



Fig: 5 Conducted program with Agriculture officials

1. Then we interacted with the farmers about whitefly management in cotton and yellowing diseases control in cucumber.



2. Discussed with medical officials and known the health regarding issues in entire tribal community of Paallampatu, Peenjamandhai and Jarthankollai villages.

Value addition in Millet and SHG formation

Creating awareness program on Empowering women farmers to get value addition in millet. Millet crop has high nutritive value and rich in fiber crop. To improve the marketing value for the crop value addition can done from millet through women Self-help groups. Value addition of millet viz bakery products such as bread, Rusk, cookies, Noodles and murukku mix.



Fig:7 Value addition in Millet and SHG formation

October & November 2022

Introduction:

Decalepis hamiltonii Wight & Arn. also known as swallow root, is a woody climber belonging to the family Apocynaceae. It is widely found in moist as well as dry deciduous forests of peninsular India. It is seen growing along rocky slopes and rock crevices in wild. In local languages, this plant is known as Maredukommulu, Nannarikommulu, Madinakommulu, Barresugandhi, and Maredegaddalu. The roots of this plant are of economic significance and are used in several medicinal and food preparations. Some of the medicinal properties are attributable to blood purification and antioxidant activity. It is a dry deciduous plant and leaf fall take place in winter.

Work progress:

Identified suitable land, water and soil for cultivating medicinal plants. An endangered medicinal plant *Decalepis hamiltonii*, *Sphaeranthus amaranthoides* native to peninsular India was found in the records of Jawadhu hills through an online database survey. The plant has a high market value (500Rs/kg) and is recommended for cultivation in the barren lands of Jarthankollai, Peenjamandhai, Paallampatu panchayat, Anaicut taluk Vellore district. As an initial step, wild saplings were collected from the Jawadhu hills and planted on a small scale at Paallampattu panchayat. The plant showed better growth and adapted to that environment.

- Conducted an awareness program for farmers to know how to cultivate, irrigate, pest control maintenance and process & packaging method
- Providing the medicinal plant to the tribal farmers to enrich their livelihood and financial status
- 2500 saplings were collected from the jawadhu hills and distributed to farmers (Mr. Sundaresan and Mr. Mani) Preliminarily the land preparation was done by plowing, weeding, and ridges forming in the measurement of 2.5m breadth x 2m height every seedling was planted in Peenjamandhai village.
- Observing the plant growth, germination cycle, seed viability, and irrigation method at weekly intervals every month for a period of two years
-



Fig:8 *Decalepis hamiltonii* was planted in Peenjamandhai village

December 2022 to February 2023

Introduction:

Sphaeranthus amaranthoides Linn is a small procumbent herb with spreading branches found in semi-aquatic environment. It belongs to the family, Asteracea. In Tamil it is known as sivakaranthai. It is used as an energizer in siddha preparation. This plant was known for treatment of eczema, blood disorders, stomach worms, filaria, fever, skin diseases, anti-helminthes and jaundice.

Mr. Sundaresan and Mr. Sakkarapani farmers were shown interest to cultivate the Medicinal plant in their field. Initially the land was ploughed and enriched the soil nutrients with Bio-fertilizers and Vermicompost.



Fig:9 Land ploughing

Then the seeds were sowed in 600 sq.ft of Mr. Sakkarapani land at Thekumarthur village and remaining seeds were sowed in 410 sq.ft of Mr. Sunderesan land at Peenjamandhai village.



Fig:10 Seeds of *Sphaeranthus amaranthoides* were sowed

Panchagavya (Biofertilizer) consists of nine products viz. cow dung, cow urine, milk, curd, jaggery, ghee, banana, Tender coconut and water. When suitably mixed and used, these have miraculous effects. After 3 days mix cow urine and water and keep it for 15 days with regular mixing both in morning and evening hours. Then it's sprayed in cultivation land to enrich the soil and plant growth. The irrigation cycle and plant growth were observed in every week intervals.



Fig:11 Panchagavya (Biofertilizer)

Plant growth observation cycle (*Sphaeranthus amaranthoides*)

Juvenile stage:

Plant: *Sphaeranthus amaranthoides*

7 days after (planting) observation

Plant	Height(cm)	No.of.leaves	Leaf length(cm)
P1	10.5	10	5
P2	12	9	6
P3	10	7	5
P4	9.5	8	3.6
P5	8.5	6	4
P6	9.3	10	3.8
P7	8	6	4.3
P8	7.8	10	3.8
P9	8.5	7	4.8
P10	14.5	13	6.5

Table:1 Juvenile stage observation



Fig: 12 Juvenile stage of *Sph.amaranthoides*

Vegetative stage:
4th week observation

Plant	Height	No.of.leaves	Leaf length(cm)
P1	12	17	8.2
P2	13.2	14	5.5
P3	14.5	11	7.5
P4	14.3	16	6.2
P5	15.5	13	7.1
P6	13.2	16	5.8
P7	16.5	18	7.3
P8	14.5	15	7.3
P9	13.1	13	6.7
P10	14.2	11	5.9

Table:13 Vegetative stage observation



Fig:14 Vegetative stage of *Sph.amaranthoides*

Flowering stage:
8th week observation

Plant	Height(cm)	No.of.leaves	Leaf length(cm)
P1	21	18	8.3
P2	17	16	7.4
P3	19.5	15	8.8

P4	22	28	10.5
P5	21.5	26	6.5
P6	22.5	32	6.7
P7	17.8	23	6.2
P8	26.3	34	9.2
P9	24	26	8.3
P10	20.5	25	8

Table:3 Flowering stage



Fig:15 Flowering stage of *Sphaeranthus amaranthoides*

- Conducted an Awareness program entitled as Indigenous and endangered medicinal plants and Phytochemicals properties of herbal drugs.

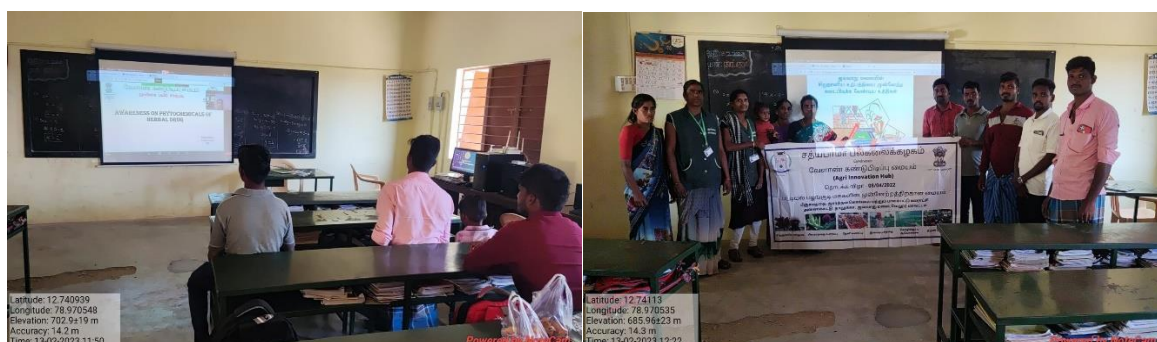


Fig:16 Awareness program entitled as Indigenous and endangered medicinal plants

Kitchen garden techniques

Kitchen garden is the growing of fruits and vegetables at the backyard of house by using kitchen waste water. A minimum area is identified near the house for setting up of kitchen garden. The farmers got benefitted with fresh farm vegetables saving expense. farmers get benefitted with the help of kit distributed during the program.



Fig:17 Program based on Kitchen Garden techniques

Visit to FPO

A group of farmers have been identified and were taken to small millet farmer producer company. Farmers get actively interacted with tribal community how they get directly benefitted with farmer producer company and also visited to millet processing unit, tamarind and apiary unit and they have known about marketing strategies of millet.





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**Annual Report - Science Technology and Innovation Hub in Kattumannar Koil, C D Block,
Cuddalore District, Tamil Nadu**

**By
Centre for Waste Management
Centre of Excellence for Energy Research
Centre for Nanoscience and Nanotechnology
Department of Electronics and Communication Engineering**

**Supported by
Department of Science and Technology – New Delhi**

Year 2022 - 2023

10 days Training Programme Series Report

The ten days training programme (Series 1) was organised at various periods in the following villages. Beneficiaries were identified from each village and were trained for lab-scale biodiesel production. The training materials were provided. Waste Cooking oil was used as raw material. The training was given by Dr.D. Ramachandran, one of the Project Investigators of STI-HUB, Mr.A.Santhosh, the Project coordinator and Mr.S.Sanjay Kumar, the Project Assistant of the STI Hub established at Cuddalore. An attendance roll was prepared, and an announcement was made that attendance was compulsory on all days of training. The significance of Transesterification of raw oil, separation of product and by-product and washing of biodiesel were explained. The wash water generated during the biodiesel refining process was also collected. The by-product glycerine from the biodiesel process was recovered and stored.

May - June 2022 Village: Aadhanur **Duration:** 24/05/2022 to 06/06/2022



Village: Eachampoondi **Duration:** 20/05/2022 to 02/06/2022





June – July 2022 Village: Aadhanur **Duration:** 21/06/2022 to 04/07/2022



Village: Eachampoondi Duration: 13.06.2022 to 28.06.2022



July 2022 Village: Aadhanur Duration: 18.07.2022 to 29.07.2022



Village: Eachampoondi Duration: 15.07.2022 to 28.07.2022



November 2022 Village: Aadhanur Duration: 08.11.2022 to 22.11.2022



Village: Eachampoondi Duration: 30.11.2022 to 14.12.2022



December 2022 Village: Aadhanur **Duration:** 01.12.2022 to 14.12.2022



Biodiesel production and Characterization training in MRK college, Kattumannarkoil

Centre for Waste Management, Centre of Excellence for Energy Research of Sathyabama Institute of Science and Technology organized a Biodiesel production and Characterization training in MRK College, Kattumannarkoil on 23rd February 2023. Around 100 students have participated and got benefited during the training programme.



Sale of biodiesel

The STI-Hub project team Mr.Parthiban visits Aranthangi on 22nd July 2023 and sell the biodiesel produced in the project site for Genset operation.



Mr.A.Santhosh, Mr.Mazhalai selvan and Mr.Parthiban visits different villages near kattumannrkoil like Muthuservamadam and Kaduvetti on 23rd July 2023 and sell the biodiesel for the Genset operations.

