

# **SWACHH BHARAT STUDENT INTERNSHIP (SBSI) REPORT**



## **Team Members**

Apurva Avinash Vaingankar [L]  
Divika Anil Narvekar  
Eden Kimberly D'souza  
Sainil Vinod Naik  
Saloni Laxmikant Sukhi

## **Under the guidance of**

Dr. Judith Noronha  
Assistant Professor in Microbiology  
Microbiology Programme  
School of Biological Sciences and Biotechnology

**2022-23**




## DECLARATION

We have carried out the SBSI 2022 Internship under the guidance of –

Dr. Judith Noronha,  
Assistant Professor of Microbiology,  
Department of Microbiology.

The contents of this report are original and are reporting the 100 hours of work carried out by us during this internship.

Roll No, Name and Signature of SBSI 2022 Interns:

22P0420001	Apurva Vaingankar	
22P0420006	Divika Narvekar	
22P0420007	Eden D'souza	
22P0420016	Sainil Naik	
22P0420017	Saloni Sukhi	

## CERTIFICATE

This is to certify that the following SBSI 2022 Intern/Interns –

22P0420001 Apurva Vaingankar  
22P0420006 Divika Narvekar  
22P0420007 Eden D'souza  
22P0420016 Sainil Naik  
22P0420017 Saloni Sukhi

have satisfactorily completed 100 hours of activities related to SBSI

During this internship period, it was noticed that the interns acquired and enhanced the following skills –

1. Converting postharvest and kitchen waste into useful products
2. Generating entrepreneurial opportunities through the products
3. Developed organizational skills by the various programs organized
4. Reaching out to the community in the best way possible

This report is being submitted to SBSI 2022 University Nodal Officer, in partial fulfilment for the completion of the SBSI Course during the academic year 2022-2023.



**Dr. Judith Noronha**  
Mentor



**Dr. Milind Naik**  
Coordinator



**Dr. Lakshangy Charya**  
Program director

### **Acknowledgement**

We extend our sincere gratitude to all those who helped us during the Swachh Bharat Student Internship program. Without their active guidance and help, cooperation, and encouragement, we would not have made headway on this project.

We thank our mentor Dr. Judith Noronha and our Coordinator Dr. Milind Naik, Assistant Professors of Microbiology, for their guidance and support. We are grateful to Dr. Diptesh Naik, Assistant Professor of Physical Chemistry, Dr. Lata Gawade, Assistant Professor of Microbiology, Programme Director Microbiology, Dr. Lakshangy Charya and the Deans of the School of Biological Sciences and Biotechnology for support in various aspects. Finally, we thank the Chairperson and members of the SBSI advisory committee and SBSI nodal officers for facilitating our participation in this program.

- Microbiology Team 2, SBSB

Theme	Activity	Hours <sup>5</sup> completed
Sanitation and hygiene	Beach cleaning	5 hours
Greenery	Seed bombs	7 hours
Marine farming	➤workshop on oyster and mussel cultivation.	4 hours
	➤expert talk on seaweed cultivation & culturing	3 hours
	➤workshop and demonstration on selection of seaweeds and cultivation.	2 hours
	➤expert talk on latest trends in marine farming	3 hours
	➤expert talk on marine resources	4 hours
	➤expert talk on mushroom cultivation and entrepreneurship.	4 hours
	➤Mushroom cultivation	50 hours

	➤ Workshop & demonstration of mushroom cultivation	6 Hours
Waste management	Small scale composting	5 hours
Education Outreach	➤ Awareness program on mushroom cultivation	6 Hours
	➤ One day workshop on Marine Farming	5 Hours

## INTRODUCTION

The Swachh Bharat Student Internship program (SBSI) is a remarkable opportunity for students like us to become part of a meaningful journey aimed at creating a cleaner and healthier India.

This initiative, aligned with the Swachh Bharat Abhiyan, empowers us to actively contribute to the mission of promoting cleanliness and sanitation across our nation. Through this internship, we look forward to making a notable impact on our local communities while acquiring knowledge that will undoubtedly prove instrumental in our future pursuits. Together, let us embrace this inspiring journey towards a Swachh and Swasth Bharat – a vision we collectively aspire to achieve.

## **THEME: Sanitation and hygiene**

### **➤ Beach cleaning**

On 9 April 2023, in view of helping the fishermen of Siolim the beach cleaning activity was done by us at Uddo Beach – Siolim, Bardez Goa. It is said to be the dirtiest beach in North Goa therefore we thought it was a good place to clean. We collected the garbage in waste disposal bags and after collection disposed them off in a garbage bin provided for the village by the Panchayat.



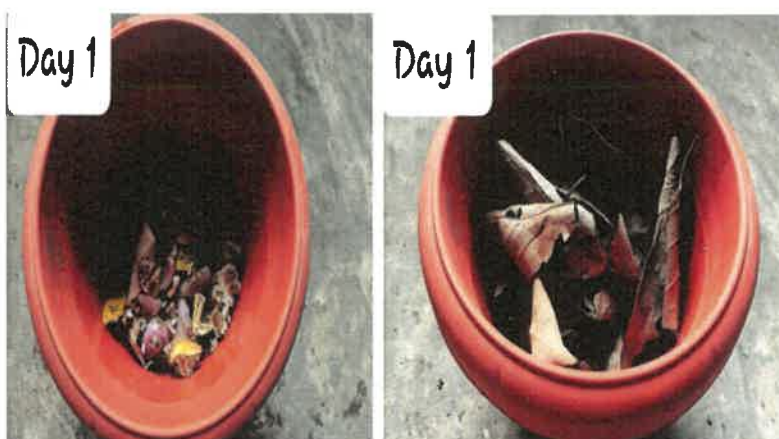
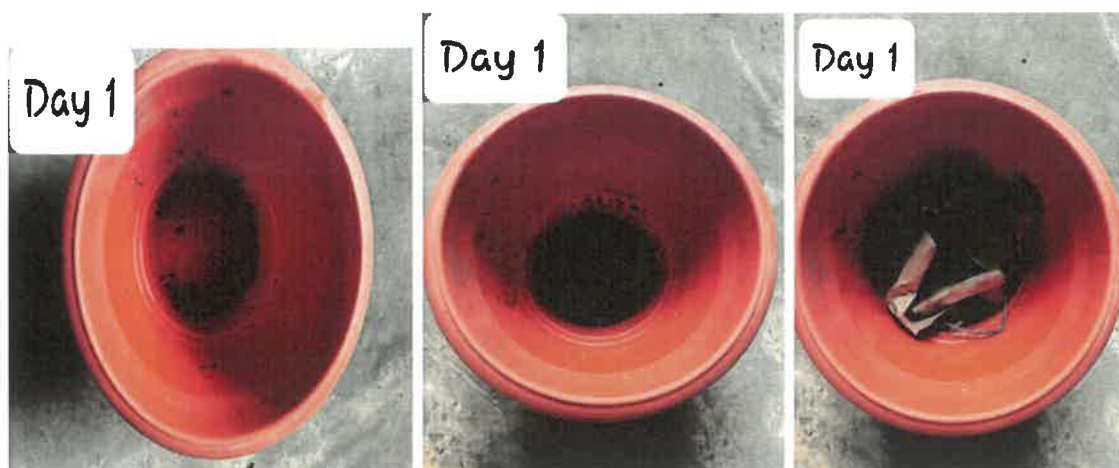




## **THEME: Waste management**

### **➤ Small scale composting process**

On 10 February 2023, we started with small scale composting. We created a small hole at the base of the pot to allow the water to pass. The first layer was garden soil, followed by fallen – dried leaves, on this we put a layer of kitchen waste previously collected from our houses and added another layer of leaves. A layer of soil was then added and the pot was covered. Soil had earthworms which help in the composting process. Water was also added. On the next day more kitchen waste was added, followed by a layer of leaves and finally a soil layer and covered the pot. On the following days the pot was mixed and watered occasionally. On 21 March 2023 (40<sup>th</sup> day) the compost was ready



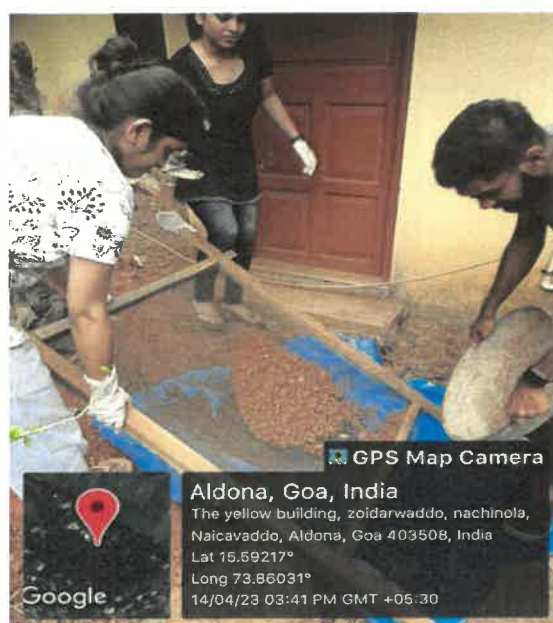
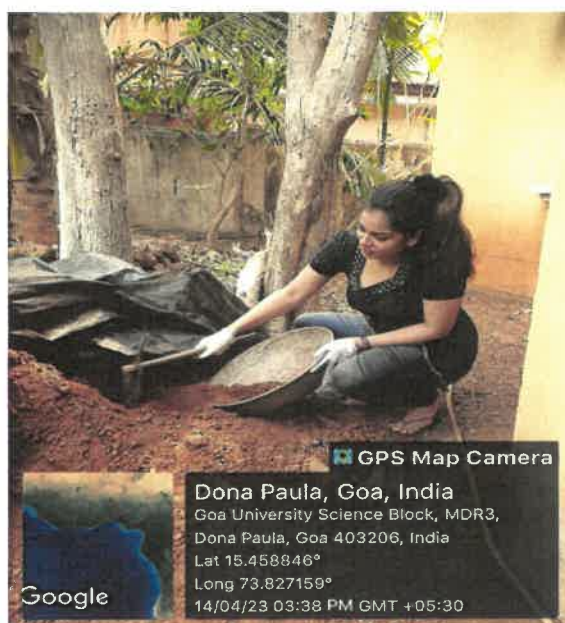


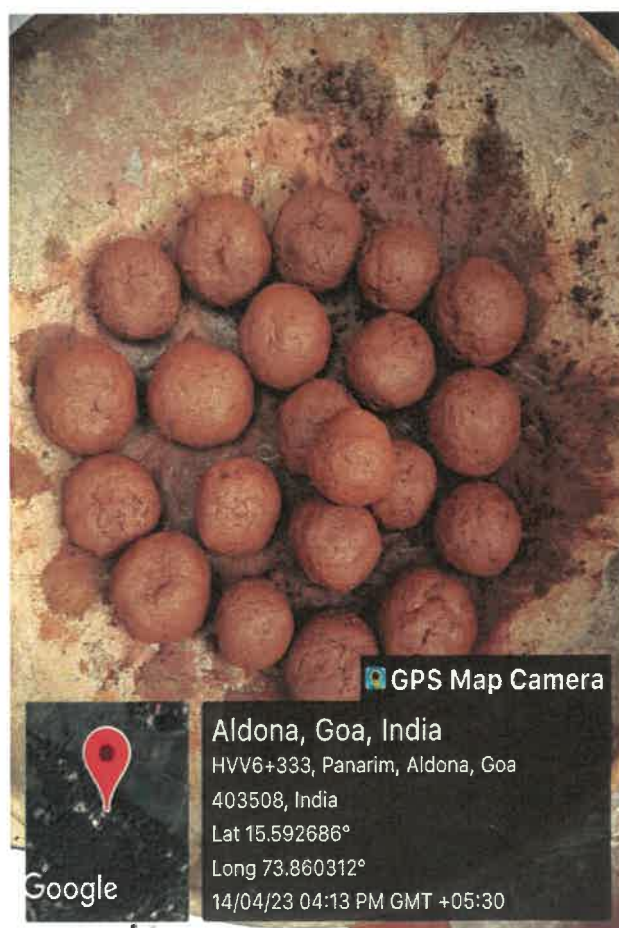


## **THEME: Greenery**

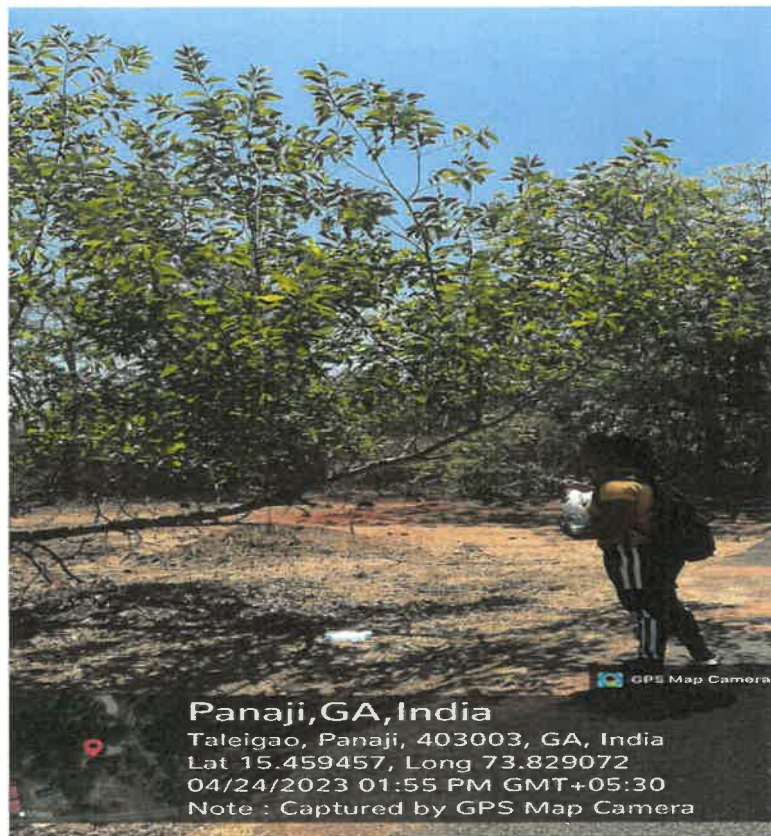
### **➤ Seed bombs**

On 14 April 2023, we prepared seed bombs at Aldona village. For the preparation of the bombs, the soil was sieved and coco peat and compost (75% , 10%, 15% ) was added. Appropriate amount of water was added to mold it into balls. To these balls, seeds were added. They were left for drying for about a week.





On 24 April 2023, the seed bombs were fully ready after drying which were then dropped at various locations within the Goa University campus.





## **THEME: Marine farming**

### ➤ **Workshop on mussel cultivation**

On 4 February 2023, we organized a workshop on mussel cultivation at Madkai village. We were part of the organizing, food & photography committee. Various experts spoke on mussel cultivation. Dr. Lata Gawade was the coordinator and one of the speakers in the programme. They enlightened us about various aspects and methods to cultivate mussels. The speaker from Goa Fisheries Department highlighted the various government schemes for local mussel cultivators. Further, we visited the site where cultivation is carried out and participated in a hands-on training in the same.

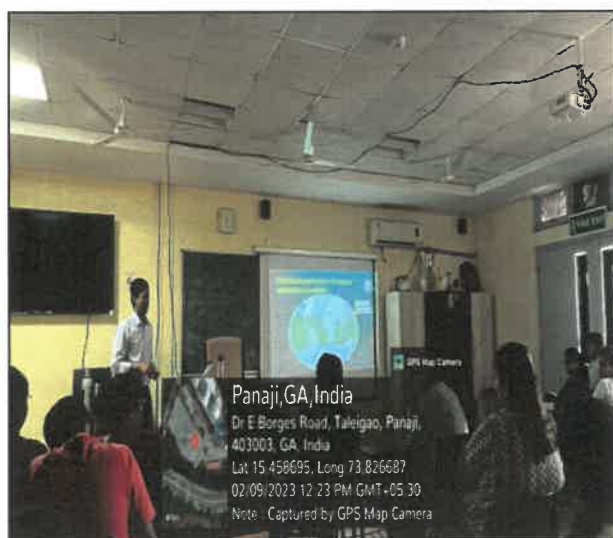


Dr. Lata Gawade and Students Demonstrating Mussel Cultivation Procedures to Villagers in Madkai



➤ **Expert talk on marine farming**

On 2<sup>nd</sup> September 2023, we organised a talk by an industrial expert who visited Goa University to talk about how current industries are producing various products using seaweeds and providing the assistance to farmers to cultivate seaweeds economically. He also introduced us to the new emerging techniques employed by their company for cultivating seaweeds.



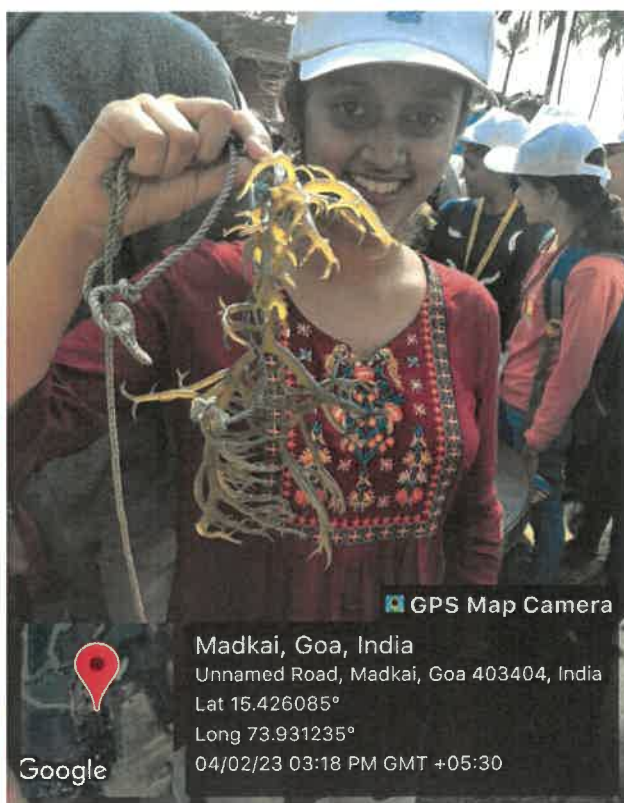
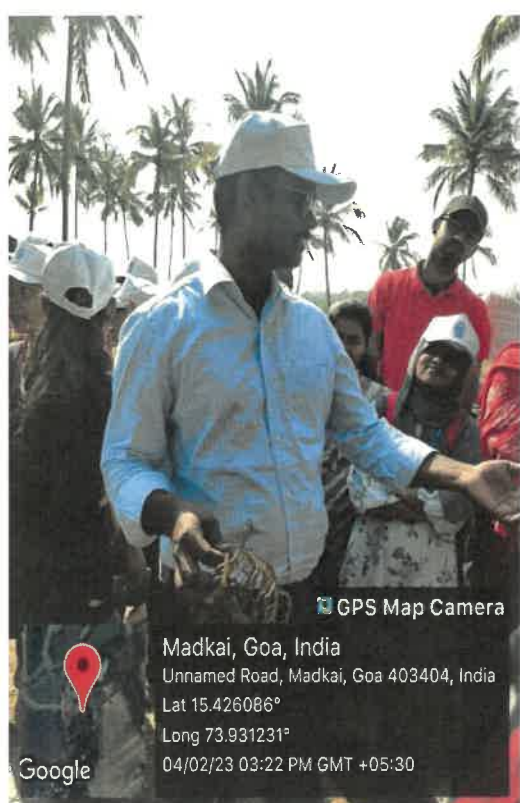
➤ Expert talk on Marine resources

On the occasion of National Science day on 28<sup>th</sup> February 2023 , we organised a talk by Prof. Bela H Buck with an aim to sensitize students and faculty on the potential for Marine Resources. It was a very informative talk about new techniques in Marine farming particularly in ocean waters.



➤ **Expert talk on seaweed cultivation and culturing**

On 4<sup>th</sup> February 2023, we were taken on a site visit to Madkai village to see the mussel and seaweed cultivation. The experts gave us an hands on experience on cultivation techniques. We also saw how mussels were being cultivated in the village by using a nylon rope.



## ➤ Workshop on Mushroom Cultivation

### Seed preparation

Mushroom was taken and a small section of it was placed on PDA (Potato dextrose agar) and was kept for mycelium to grow. Whole grains of sorghum were taken and boiled in water for around 30 minutes for it to retain enough of moisture. The grains were spread on a clean perforated sheet to drain excess water. These grains were then put in a container and the mycelial growth on the media were inoculated on the grains and was allowed to grow. The seeds turned white completely and this was used as spawn.



### ➤ Workshop on Mushroom Cultivation

On 13 April 2023, at the Mushroom Cultivation and Incubation Centre (MCIC), Goa University, Dr Milind Naik demonstrated to all the SBSI interns the process of tying the inoculum bags with rubber bands. This was followed by the demonstration of the filling of the bags with already autoclaved substrate and spawn. Some of us also practiced the filling of the bags with the autoclaved substrate and spawn. We closed the bags with rubber band, made holes on the bag with the help of sterile needle and kept the bags in the dark room.





➤ Expert talk on Mushroom Cultivation and Entrepreneurship

On 1 April 2023, at Lecture Hall 1, School of Chemical Sciences – Goa University we had a talk on Mushroom Cultivation by Dr Milind followed by an expert giving us a talk on entrepreneurship in Mushroom Cultivation. After this we were taken to the MCIC for the demonstration.



**GOA UNIVERSITY**  
**EDUCATIONAL OUTREACH COMMITTEE (EOC)**  
 Social Entrepreneurship, Swachhata and Rural Engagement Cell (SES-REC)  
 Organizes a Workshop on

**"Mushroom Cultivation: Scientific techniques & challenges"**  
 Date and time: 1<sup>st</sup> April 2023 at 2.00 pm  
 Venue: Lecture Hall 1, School of Chemical Sciences, Goa University



**Dr. Milind Naik**  
 Assistant Professor, SBSB  
 Goa University  
 &  
 SBSI Champion of  
 Mushroom Cultivation  
 Programme 2023

**Highlights of the program**

- Talk on Mushroom Science, Cultivation & Challenges
- Journey of Mushroom Cultivation program by SBSI Champion 2022.
- Demonstration of Mushroom Cultivation techniques
- Demonstration of Substrate Design and sterilization techniques
- Visit to Mushroom cultivation and Incubation center (MCIC)

This program aims to create awareness and encourage the student community towards skill development and entrepreneurship opportunities in this sector.

Goa University SBSI Interns & Mentors will participate in this program and take-up mushroom cultivation project at Goa University (April - May 2023)

A small step towards Atmanirbhar Goa & Atmanirbhar Bharat!



**Prof. Jyoti Pawar (Convenor)**

<p><b>Advisory committee</b>                  Dr. Pranay Morajkar (Chairperson)  <b>Members:</b>                  Dr. Harip Khanapuri                  Dr. Bidhan Shinkre                  Dr. Jivan Parab</p>	<p><b>Coordination committee</b>                  Dr. Diptesh Naik (Chairperson)                  Dr. Milind Naik (Coordinator)  <b>Members:</b>                  Dr. Bhakti Salgaonkar                  Dr. Savita Kundaikar                  Dr. Rupesh Kunkalkar                  Mr. Kevin D'Souza</p>
	<p><b>Members:</b>                  Dr. Aditi Naik                  Dr. Judith Noonha                  Ms. Gandhita Kundaikar</p>

## ➤ Cultivation of Mushroom

### 1. Cleaning of MCIC

On 11 February 2023, we cleaned the racks placed in both light and dark room. Under the guidance of Dr. Milind we first cleaned the old cardboard boxes from the dark room and proceeded to clean the racks with water to remove the dust and old paint that was coming off. We then cleaned the light room in the same way. And we finally swept and mopped the floor of the MCIC.

On 6 April 2023, we covered the racks in MCIC with a fresh coat of paint and cleaned the plastic covering with IPA solution.





On 8 April 2023, under the guidance of Dr. Diptesh we fumigated the MCIC which was the final step in the cleaning of the center. After the fumigation the MCIC was left undisturbed for 3 days.





➤ Substrate collection

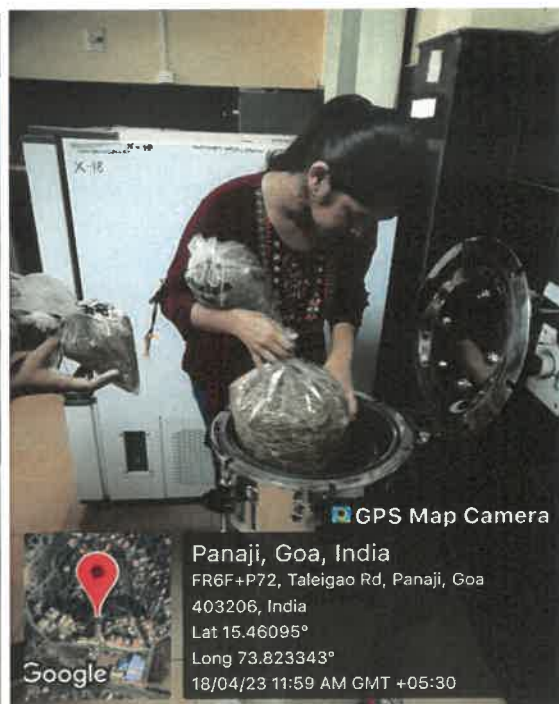
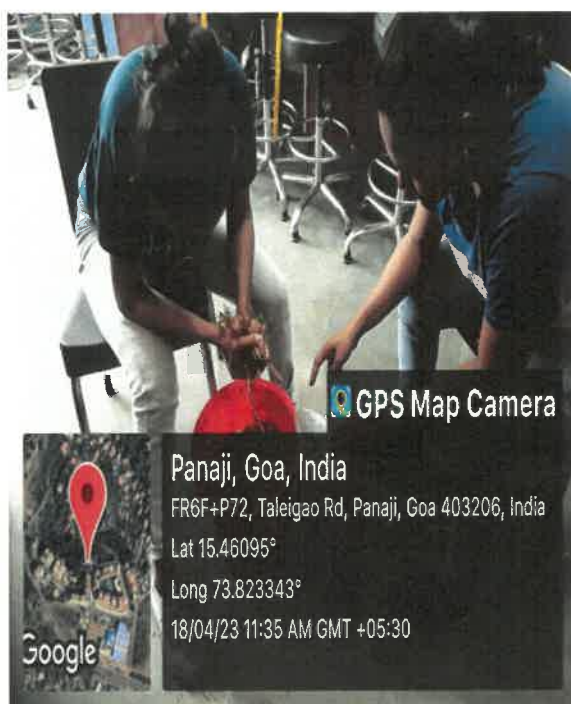
On 16 April 2023, we went for substrate collection and used two large 5kg bags to collect hay as our substrate for Mushroom Cultivation.

On 17 April 2023, we cut the substrate into approx. 2cm long pieces as instructed to us. On the same day we also kept the cut substrate for overnight soaking in water.



On 18 April 2023, we removed the water from the substrate by squeezing it and autoclaved the substrate using autoclavable bag in the autoclave available at Marine Microbiology lab in Goa University. After

autoclaving we took the autoclaved bags to MCIC and spread the substrate on the clean floor and kept for cooling. Under the guidance of Dr. Milind and Dr. Diptesh we proceeded to fill the bags with substrate and spawn as we had been taught earlier and kept the filled bags in the dark room. They were left there undisturbed for 20 days.





After 20 days the inoculated bags were transferred into the light room and every morning were sprayed with water to provide moisture to the growing mushroom.

These were the mushroom we were able to successfully grow.





## **EDUCATIONAL OUTREACH**

### **➤ Awareness program on Mushroom Cultivation**

On 2 July 2023, we performed an outreach activity for the women of Vijaya Self Help Group at Sodiem – Siolim. We explained to the SHG women the step by step process of mushroom cultivation and demonstrated the process of filling of bag.





 GPS Map Camera



Sodiem Siolim, Goa, India  
JQCW+966, Sodiem Siolim, Goa 403517, India  
Lat 15.620023°  
Long 73.794668°  
02/07/23 04:48 PM GMT +05:30

➤ **Feedback**

One of the members of the Vijaya Self Help Group gave us feedback on the outreach activity that we had conducted for the SHG. We have attached the video feedback on the ppt.

To summarize she said “The Goa University students have explained to us the procedure for Mushroom Cultivation & being inspired by it the SHG wants to grow mushrooms & wants in depth training & workshop on it”

➤ One day workshop in Marine Farming

On 4 February 2023, we organized a workshop on mussel cultivation at Madkai village. We were part of the organizing, food & photography committee. The workshop was open to various school students, college students and the locals. We learnt about various techniques of mussel and seaweed cultivation and how we can grow that into a profitable business.



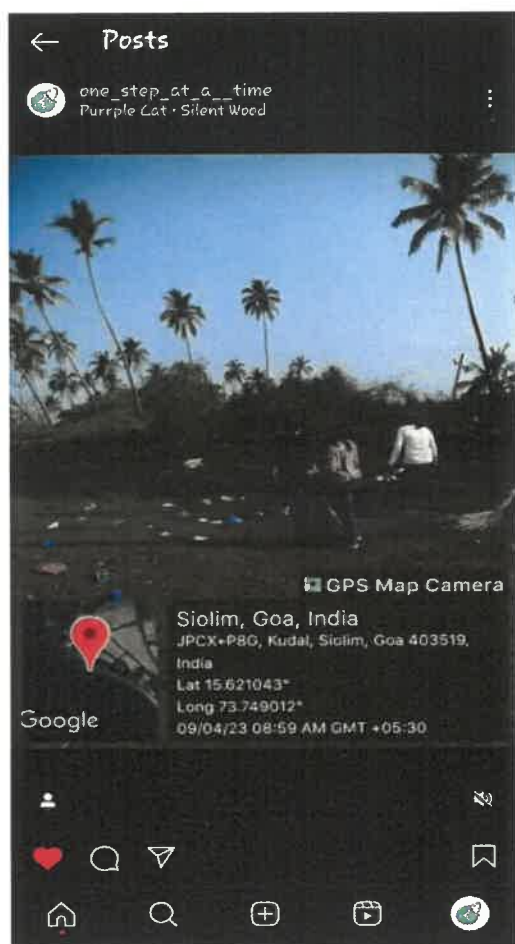


## SOCIAL MEDIA AWARENESS

We posted reels on the social media platform Instagram to inform, educate and engage individuals in participating in the Swachh Bharat mission.

[https://www.instagram.com/one\\_step\\_at\\_a\\_time/](https://www.instagram.com/one_step_at_a_time/)





## **TAKEAWAY OF SBSI 2022**

The Swachh Bharat Student Internship has yielded invaluable takeaways that extend beyond mere sanitation. This initiative, launched as part of India's Swachh Bharat Abhiyan, provided students with a unique opportunity to engage in hands-on cleanliness and hygiene projects, fostering a sense of responsibility and community involvement.

The internship nurtured teamwork, leadership, and communication skills. Collaborating with peers and coordinating with local authorities demonstrated the significance of collective effort in achieving larger social goals. The ability to convey complex ideas in simpler terms during awareness campaigns honed communication prowess, essential in advocating for positive change.

In conclusion, the Swachh Bharat Student Internship transcends its immediate focus on cleanliness, imparting lasting lessons in environmental awareness, community engagement, and personal growth. The experiences and skills gained will undoubtedly shape a more responsible, environmentally conscious, and proactive citizenry, contributing to a cleaner India and a brighter future.