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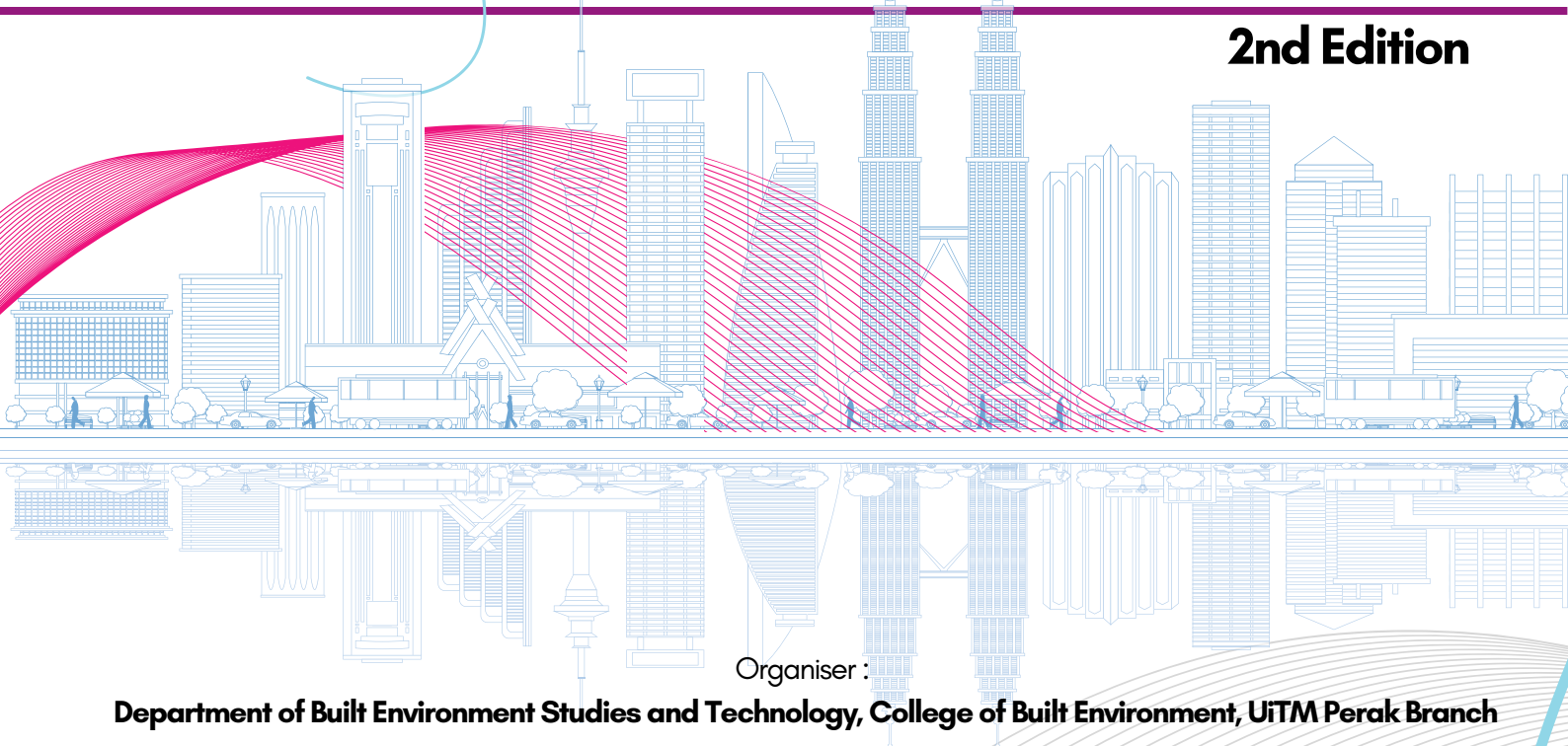
Cawangan Perak

e - Proceedings



Proceeding for International Undergraduates Get Together 2024 (IUGeT 2024)
"Undergraduates' Digital Engagement Towards Global Ingenuity"

2nd Edition



Organiser :

Department of Built Environment Studies and Technology, College of Built Environment, UiTM Perak Branch

Co-organiser :

INSPIRED 2024. Office of Research, Industrial Linkages, Community & Alumni (PJIMA), UiTM Perak Branch

Bauchemic (Malaysia) Sdn Bhd

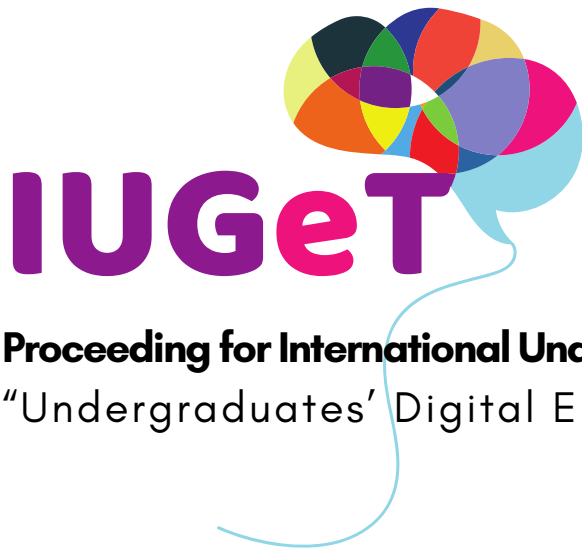
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EMPOWERING B40 CHEMICAL SCIENCE STUDENTS: AN ENTREPRENEURIAL INITIATIVE IN SUSTAINABLE OYSTER MUSHROOM CULTIVATION

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Abstract

This project focuses on empowering B40 Chemical Science students to engage in entrepreneurship through the cultivation and sale of oyster mushrooms in between classes. The initiative involves training students in the cultivation and sale of oyster mushrooms on campus, providing a practical and sustainable business model that can be managed alongside their academic commitments. Addressing key challenges such as limited space, financial constraints, and lack of support, the program offers a comprehensive module covering mushroom cultivation techniques, financial management, and effective marketing strategies. Emphasis is placed on sustainable practices to ensure minimal environmental impact, with sales commissions awarded based on participant performance. The primary objectives are to generate additional income for students, enhance their entrepreneurial skills, and raise awareness of sustainable development goals. By fostering community involvement and continuous improvement, the project seeks to cultivate a resilient and environmentally conscious entrepreneurial mindset among university students.

Keywords: *B40 students, Entrepreneurship, Oyster mushroom, Sustainable cultivation*

1. INTRODUCTION

According to a report released by Berita Harian (2003) more than 460,000 students in Malaysia from B40 families are currently studying at institutions of higher learning in Malaysia. Nowadays the majority of the students, especially the B40 students are struggling to cover their basic living expenses and educational needs due to insufficient allowances or financial support, making it challenging for them to thrive in university environments. This financial strain often forces them to juggle multiple part-time jobs, negatively impacting their academic performance and overall well-being. Lee dan Rodríguez-Pose (2021) said that entrepreneurship is the key to reducing poverty. Introducing entrepreneurship education at universities can provide a viable solution to this issue. By equipping students with the skills and knowledge needed to start and manage their own businesses, universities can empower B40 students to generate additional income. Entrepreneurship programs offer practical financial benefits and foster self-reliance, innovation, and resilience among students. Through hands-on training, mentorship, and access to resources, these programs help students create sustainable income streams, alleviating financial pressures and enhancing their learning experience. This program also encourages the involvement of chemical science students, especially the B40 group, in entrepreneurship and owning business through the sale of oyster mushrooms cultivated by the students themselves.

This innovation was initiated to achieve sustainable development goals. In addition, this program has its module prepared by a coordinator for students to run the business. Moreover, this program can enhance student's knowledge on attending oyster mushrooms.

In an oyster mushroom growing program on campus, participants will receive instruction on the fundamental aspects of mushroom cultivation. The remaining steps of the program include incubation in a regulated setting and fruiting in a moist, well-ventilated area. When mushrooms reach the right size, they are harvested, and post-harvest management makes sure they are packaged and stored properly. Sustainable practices are put into place to reduce the impact on the environment, and marketing and sales strategies are created to attract potential customers. Based on user input and continuing research, the software strives for scalability and continual development.

Furthermore, to contact potential customers, marketing, and sales tactics are created, and commissions from sales are split according to the performance of the participants. The program aims for continual improvement and sustainability based on feedback and ongoing research, and it promotes networking among UMT students while emphasizing sustainable methods to minimize effects on the environment.

In addition, to take proper care of the oyster mushrooms, students need to adhere to a strict timetable to ensure everything from substrate preparation to inoculation, incubation, and fruiting is done on time. Marketing and selling of harvested mushrooms are done via social media, with the payment option of cash on delivery to encourage in-person interactions. To ensure accurate financial records, every sale is carefully documented. Revenue is tracked, and commissions are awarded according to how well each student's overall performance during the cultivation process and how well they abide by their responsibilities. This approach guarantees equity and encourages students to make meaningful contributions to the program's accomplishment.

2. MATERIALS AND METHODS

MATERIAL

Four hundred fully matured oyster mushroom blocks were obtained from WAFA SPORA ENTERPRISE and placed in the mushroom house at UMT (Figure 1). The moisture content, pH, and light intensity were measured daily to ensure consistent mushroom production.



Figure 1. Oyster mushroom house in campus UMT

METHOD

The oyster mushroom cultivation process consists of an average of six cycles. After each harvest, the oyster mushroom blocks are set with an enclosed lid for approximately 7 days before the next cycle begins. This procedure continues until 6 cycles are completed or until the mushroom blocks no longer produce mushrooms. Mushrooms will rapidly growth under temperature, 10-30 °C with a pH level of 6.0-8.0 (Aditya et al., 2024).

Mushrooms will be inspected and harvested if the shape grows like a shell or spatula (Aditya et al., 2024). Once harvested, the mushrooms are cleaned and weighed before packing them in a clear logo displayed packaging. The involved students then logged their attendance via QR code and rotate their duties in the mushroom house according to a provided duty roster.

The oyster mushroom selling price is within the competitive market price in which 1 kg was sold at RM18.00, 500 g for RM 9.00 and finally 250 g for RM 5.00 respectively. The profit was divided among the students' based on the time spent on their duty roster. On average for five students involved, each obtained an additional income of RM 200.00 per month.

Various platforms were utilized to market and sell the fresh oyster mushrooms, which include the social media channels like TikTok, Instagram, WhatsApp, and email. Additionally, word-of-mouth selling around the university, including cafés, was also employed. Deliveries within and around UMT were done via cash on delivery (COD). Examples of promotional posters (Figure 2) and packaging (Figure 3) are provided below.



Figure 2. Examples of promotional materials in Instagram and Facebook



Figure 3. Examples of clear packaging used for selling the fresh oyster mushrooms

Oyster mushrooms sold to customers are freshly harvested from the cultivation site and are delivered on the same day. Prior to delivery, students supervise the growth and condition of the mushrooms, following a schedule assigned by the team leader.

3. RESULTS AND DISCUSSION

This initiative has enabled students to generate additional income through the sale of oyster mushrooms, directly tied to their performance in the project. Beyond financial gains, participating students have acquired valuable entrepreneurial skills that can facilitate future business ventures.

Furthermore, this project offers substantial cost benefits. The reuse of the mushroom cultivation venue for subsequent batches eliminates additional venue costs. Moreover, spent oyster mushroom blocks serve dual purposes namely as biofertilizer (Huang et al., 2022), compost and fish food (Zakaria et al., 2021), as well as enhancing sustainability. These blocks are also utilized by other departments, such as Fish and Fisheries, for research purposes. Fish fed-based feed had a higher survival rate and offered effective digestion than the conventional feed.

The continuous nature of this project ensures on-going benefits and learning opportunities for students, promoting sustainability and interdisciplinary collaboration within the university community.

	A	B	C	D	E	F	G	H	I
1	TARIKH	NAMA PESERTA	KEHADIRAN	LAPORAN HARIAN	HASIL KUTIPAN (gram)	HASIL JUALAN (RM)			
2	1/12/2323	MUHAMMAD HAFIZ BIN MOHAMAD ZAIDI	PRESENT	GRADE A	500	9			
3	2/12/2023	MUHAMMAD IZZUDDIN BIN MOHD NOOR	PRESENT	GRADE A	1000	18			
4	3/12/2023	WAN NUR KU NADHIRAH BINTI WAN MOHD SHAUFI	PRESENT	GRADE A	1250	22.5			
5	4/12/2023	MUHAMMAD BIN NAZERI	PRESENT	GRADE A	1000	18			
6	5/12/2023	NUR FARAH ERMVNA BINTI NORAZLAN	PRESENT	GRADE A	750	13.5			
7	6/12/2023	MUHAMMAD HAFIZ BIN MOHAMAD ZAIDI	PRESENT	GRADE B	250	5			
8	7/12/2023	MUHAMMAD IZZUDDIN BIN MOHD NOOR	PRESENT	-	-	-			
9	8/12/2023	WAN NUR KU NADHIRAH BINTI WAN MOHD SHAUFI	PRESENT	GRADE A	120	2.16			
10	9/12/2023	MUHAMMAD BIN NAZERI	ABSENT	GRADE A	2000	36			
11	10/12/2023	NUR FARAH ERMVNA BINTI NORAZLAN	PRESENT	GRADE A	500	9			
12	11/12/2023	MUHAMMAD HAFIZ BIN MOHAMAD ZAIDI	PRESENT	GRADE A AND GRADE B	1000	18			
13	12/12/2023	MUHAMMAD IZZUDDIN BIN MOHD NOOR	PRESENT	GRADE A	250	5			
14	13/12/2023	WAN NUR KU NADHIRAH BINTI WAN MOHD SHAUFI	PRESENT	GRADE A	1500	27			
15	14/12/2023	MUHAMMAD BIN NAZERI	PRESENT	GRADE A	250	5			
16	15/12/2023	NUR FARAH ERMVNA BINTI NORAZLAN	ABSENT	GRADE A	200	3.6			
17	16/12/2023	MUHAMMAD HAFIZ BIN MOHAMAD ZAIDI	PRESENT	GRADE B	400	7.2			
18	17/12/2023	MUHAMMAD IZZUDDIN BIN MOHD NOOR	PRESENT	GRADE A	1000	18			
19	18/12/2023	WAN NUR KU NADHIRAH BINTI WAN MOHD SHAUFI	PRESENT	GRADE A	150	2.7			
20	19/12/2023	MUHAMMAD BIN NAZERI	PRESENT	GRADE A	250	5			
21	20/12/2023	NUR FARAH ERMVNA BINTI NORAZLAN	PRESENT	GRADE B	2000	36			
	DECEMBER 2023	JANUARI 2024	Sheet3						

Figure 4. The duty schedule

4. CONCLUSION

In conclusion, this project has empowered B40 students by providing them with opportunities to earn additional income while pursuing their studies through the cultivation and sales of oyster mushrooms in between classes, thereby fostering entrepreneurial skills and promoting sustainable practices. By employing eco-friendly materials and methods, the project directly contributes to sustainability goals. Moreover, it promotes community involvement and serves as a catalyst for adopting environmentally responsible practices, thereby paving the way for a more resilient future.

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Tarikh : 20 Januari 2023

Prof. Madya Dr. Nur Hisham Ibrahim
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