

WELCOME TO OUR

MBUST Insights

Contributors of this Newsletter Issue:

Dr. Sabina Shrestha, Dr. Rajib Subba, Dr. Rameshwar Rai, Dr. Sudip Pandey, Dr. Bhushan Shrestha, and students

Collaborative Initiative

Natural Medicinal Products Utilization & Dermatology in Nepal

By Dr. Sabina Shrestha

In a landmark meeting held recently on 27 July, stakeholders from Madan Bhandari University of Science and Technology (MBUST), Larke Himal Jadibuti Udhyog (LHJU), Agrivastu Cold Storage, and DI Skin Hospital and Referral Center (DISHARC) discussed on strategic collaboration aimed at advancing natural medicinal product development as well as integrating artificial intelligence (AI) for dermatological diagnosis, and forming a tripartite venture to boost herbal medicine research and production in Nepal.

The MBUST team included Prof. Rajendra Dhoj Joshi, Er. Padma Sunder Joshi, Dr. Sabina Shrestha, and Dr. Sudip Pandey. LHJU team included Mr. Deepak Pandey (Chairman) and Mrs. Usha Bhattarai and Mr. Som Raj Adhikari (Agrivastu Cold Storage). The DISHARC team included participation of Prof. Dr. Shekhar Babu Rizyal (Academic Advisor and Consular), Prof. Dr. Anil Kumar Jha (Chairman), Mr. Rishi Sapkota (Educative Administrator), Mr. Shyam Prasad Shrestha (Founder Member and Investor), and Mr. Niranjana K. Bhattarai (HR Manager and Secretary).



Some glimpses of LHJU and DISHARC visit in MBUST on 27 July, 2025.

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The meeting focused on natural medicinal product development and production and possibility of inclusion of Artificial Intelligence (AI) for Dermatological Diagnosis and dermatology services.

Prof. Dr. Anil Kumar Jha, Chairman of DISHARC highlighted the reliance on broad-spectrum treatments to manage chronic conditions that cause morbidity rather than mortality, requiring lifelong patient care. Prof. Jha elaborated on the inclusion of herbal solutions, mentioning treatments involving mushroom-based, Neem, and Tulasi product. He also elaborated on DISHARC's telehealth initiative, Community Health Education Services by Telehealth (CHEST), which through intranet and online home consultation provides specialist services rapidly including to Nepali diaspora in multiple countries.

Prof. Dr. Shekhar Babu Rizyal, academic advisor to DISHARC called for comprehensive exploration and formulation of dermatological remedies and research initiatives, stressing that innovation requires rigorous scientific inquiry.

Mr. Rishi Sapkota highlighted that DISHARC provides about 10% of regional dermatology services, with education, service, and research integral to its mission. He also acknowledged policy and regulatory challenges but insisted on unified efforts involving academia, government, and business sectors for leveraging Nepal's herbal resources in serving global healthcare. Mr. Shyam Prasad Shrestha, founder member and investor of DISHARC, expressed his enthusiasm for bridging people from business communities with MBUST, Larke Himal, and DISHARC to drive research collaboration and business growth in the near future.

Mr. Deepak Pandey, Chairman of LHJU, emphasized the critical need to ascertain the true medicinal value of herbal materials and actively contribute to Nepal's national health and global outreach. Mr. Som Raj Adhikari, representing Agrivastu Cold Storage linked with Bhatbateni Supermarket, briefed attendees on current agricultural product storage initiatives and advocated for extending cold storage facilities to herbal materials to preserve quality.

Dr. Sabina Shrestha, highlighted the necessity to transcend academic publications by fostering product development and practical utilization of herbal materials to ensure meaningful impact. Dr. Sudip Pandey pointed out the importance of incorporating not only herbal extracts but also use timber resources in medicinal applications.

Vice-president Er. Padma Sunder Joshi outlined MBUST's progressive strategy emphasizing the urgency of demonstrating tangible product outcomes. He stressed the importance of establishing timelines, focused planning, and pragmatic goal-setting aligned with institutional capacities.

Prof. Rajendra Dhoj Joshi, expressed that nothing can stop the true spirit of working for Nepal. He also highlighted that the new generation is now interested in natural medicine and there is limited existing research and this is the right time. This tripartite collaborative initiative of MBUST, DISHARC, and Larke Himal Jadibuti Udhyog hope to make step toward empowering Nepal's natural medicinal product sector, The meeting culminated with a consensus on forming a core group of multidisciplinary experts and need of establishing a dedicated research cell within MBUST. The collaboration will work on research promotion, clinical trials, certification, and market access for herbal medicinal products.

MBUST Signs MoU with Shimadzu Asia Pacific and Pacific Commercial Company

ADVANCEMENT OF SCIENTIFIC RESEARCH IN NEPAL

By Dr. Rajib Subba

July 3, 2025: MBUST signed an MoU with Shimadzu Asia Pacific to Advance Scientific Research in Nepal. The signing of a Memorandum of Understanding (MoU) between Madan Bhandari University of Science and Technology (MBUST), Shimadzu Asia Pacific, and Pacific Commercial Company marked a significant step forward in fostering innovation, advanced research, and scientific collaboration in Nepal.

This strategic partnership focuses on:

- Development of advanced analysis and measurement systems
- Practical training and research opportunities for students and faculty
- Leveraging Shimadzu's global network to strengthen Nepal's scientific and research ecosystem

The MoU was jointly signed by:

- Dr. Rajendra Dhoj Joshi, President, MBUST
- Mr. Daev Chua, Executive Officer & Senior General Manager, Shimadzu Corporation
- Mr. Bijendra Shrestha, Managing Director, Pacific Commercial Company — official representative of Shimadzu in Nepal

On the occasion, Dr. Rajendra Dhoj Joshi, President of MBUST, remarked: "With a partnership like the one with Shimadzu, when our laboratory becomes a reference laboratory, we will have a strong backup for making laboratories functional. And by using Shimadzu's network, we will be able to make real headway in terms of research. Together, we are building a stronger foundation for science, technology, and innovation in Nepal. I am confident that the signing of this Memorandum of Understanding will make a meaningful difference in the science and technology sector of Nepal."

Both Mr. Chua and Mr. Shrestha expressed their strong commitment and solidarity to work closely with MBUST in supporting scientific research, laboratory development, and capacity building in Nepal.



MoU signing ceremony between MBUST, Shimadzu Asia Pacific, and Pacific Commercial Company

GC (Gas Chromatographic) Analysis of “Allison” Cultivar of Kiwifruit grown in Organic Manure

MBUST KIWIFRUIT ORCHARD

By Ankita Nepal, Dr. Sabina Shrestha, Dr. Rameshwar Rai, Ashmita Rai

Research Spotlight

A recent study conducted by Ankita Nepal under the supervision of Dr. Sabina Shrestha and with support Asmita Rai at MBUST looked after the smell and flavor compounds of “Allison” cultivar of kiwifruit. The research used GC to see how growing the fruit under organic condition affect its aroma and flavor.

Why does it matter?

With growing interest in organic production and promotion, the research helps to identify how an organic nutrient sources influences the volatile organic compounds (VOCs) that shape the kiwifruit’s aroma and flavor profile.

This research will help to identify how VOC compounds influence fruit quality and shelf life, showing that organic inputs can improve the flavor and value of kiwifruit. It provides scientific support for sustainable farming. The results will be valuable for organic growers, researchers, and export-driven industries.

How was it done?

The harvested kiwifruit was freeze-dried, crushed into powder, and stored in a freezer. For Gas Chromatography (GC) analysis, 1 gram of the sample was mixed with 5 ml of ethanol and sonicated at 40 degree centigrade for 15 minutes. After sonication, 1.5 mL of the extract was collected using a syringe and transferred into a vial. The vial was then placed in the GC machine, following standard procedures. This process helped identify various volatile organic compounds (VOCs) including oxalic acid as major compound and 3,4-furandimethanol, 9-oxabicyclo(3,3,1)nonane-2,7-diol.



Some glimpses of lab activities

Join the Hunt

A SPOREX MUSHROOM FORAGING ADVENTURE!

By Saugat RC

This two-day field adventure is open to explorers, students, researchers, and nature lovers (age 18+), science or non-science, all are welcome!

Together with local guides and experts, you'll:

1. Forage for wild mushrooms in Chitlang's lush forests
2. Learn to identify edible vs. non-edible species
3. Experience hands-on lab techniques like culturing, drying & preserving
4. Tour Chitlang village and MBUST University labs
5. Take home a souvenir + knowledge that lasts a lifetime

Date: August 10–11

Departure: 8:30 AM from Pulchowk Campus

Fee: NPR 3,500 only (discounted from NPR 4,500!)

Find the link on our social media profiles:

TikTok, Facebook, Instagram – @SporeX

Technical Support by:

Madan Bhandari University of Science and Technology

Organized by: The Mushroom Lab of MBUST

Come for the fungi, stay for the fun.

Let's make mushroom memories together!

SporeX Presents
First Time in Nepal
A Wild Mushroom Hunt + Lab Experience

COME HUNT WITH US!
August • September 2025
1 Night / 2 Days of Fungi, Forest & Field Science!
Chitlang Forest + MBUST Mushroom Lab

Supported By:
Chitlang Village Resort, Madan Bhandari University of Science and Technology, Chitlang Village Resort

FEE: RS. 3,500
LIMITED SEAT
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SCAN TO REGISTER

Lecture Spotlight

CLIMATE CHALLENGES & FOREST FUTURES

By Dr. Sudip Pandey

Dr. Achyut Tiwari from the Central Department of Botany and Dr. Amrit Prasad Sharma from the Department of Environmental Science, Tribhuvan University, delivered a lecture for Forest Biomaterials students at Madan Bhandari University of Science and Technology (MBUST) on 6th July, 2025. Dr. Tiwari highlighted that Himalayan high mountain trees are becoming increasingly vulnerable due to a warming climate. Rising temperatures are causing the tree line to shift upward; however, steep terrain, poor soil, and harsh alpine conditions limit this migration. Cold-adapted species such as *Betula utilis* (Himalayan birch) and *Abies spectabilis* (East Himalayan fir) are particularly at risk due to shrinking suitable habitats, reduced snow cover, and increased moisture stress. Climate change is also altering the phenology of these species—affecting flowering and leafing times—which disrupts ecological relationships such as pollination and seed dispersal. Dr. Tiwari emphasized the urgent need for adaptive forest management, long-term ecological monitoring, and conservation strategies tailored to the Himalayan context to safeguard these fragile ecosystems.

Similarly, Dr. Amrit Sharma provided an overview of sustainable approaches to managing natural resources and environmental challenges on 28th July, 2025. He stressed the importance of integrating environmental concerns into development planning through tools such as Environmental Impact Assessment (EIA), GIS, and remote sensing. Key topics included climate change adaptation, biodiversity conservation, and the role of community-based resource management. Dr. Sharma also emphasized the need for strong legal frameworks, public participation, and inter-sectoral coordination to ensure long-term ecological sustainability and effective environmental governance.



Guest lecture from Dr. Achyut Tiwari



Guest lecture from Dr. Amit Sharma

The Journey of Tiger's Milk Mushroom

FROM FOLKLORE TO PHARMACEUTICALS

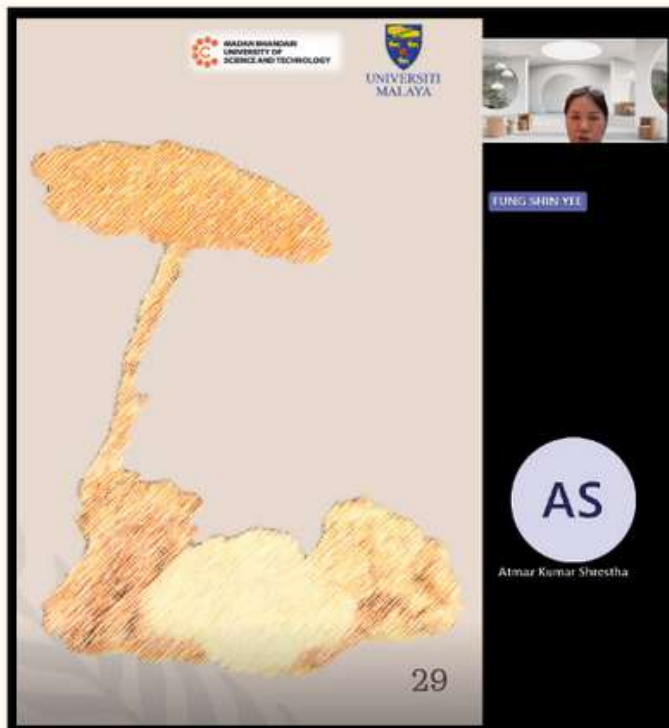
By Aatmaz Kumar Shrestha, Suraj Chaudhary, Saugat R.C., Nitesh Khatiwada, Prabin B.C., Tripti Shrestha, Srijana Dangi, Nalisha Rijal, and Bhushan Shrestha

Guest Lecture by Dr. Fung Shin Yee

Dr. Fung Shin Yee shared her inspiring journey studying *Lignosus rhinocerus*, also known as the Tiger's Milk Mushroom, a revered medicinal fungus in Malaysia. Traditionally used by the Semai and Temuan communities to treat asthma, cough, and fatigue, the mushroom caught national attention in 2002 when the Prime Minister used it for a chronic lung infection, prompting scientists to explore its potential.

Difficult to find in the wild, the mushroom grows alone and underground. Its white sclerotium, which turns milky when mixed with water, inspired its name. Due to limited samples, Dr. Fung took on the challenge to cultivate it in the lab, eventually developing a patented strain, TM02 "Tiger's Eye", grown on rice substrate.

Extensive research followed; DNA analysis, amino acid profiling, toxicity testing, and clinical trials. The mushroom showed promising benefits: relief from asthma, allergies, chronic cough, improved stamina, and immune support. It also exhibited ACE/ACE2 suppression and potential anti-cancer properties.



RESEARCH

Open Access

Efficacy and safety of *Lignosus rhinocerus* (Cooke) Ryvarden TM02® supplementation for immune-challenged patients with localised breast cancer in remission: a randomised controlled trial

Jie Yi Eng¹, Po Lin Ooi², Mariam Zafrah³, Mahmoud Danaee⁴, Marniza Saad⁵, Muhammad Fazril Mohamad Razif⁶, Nor Aishah Taib⁷, Chee Loong Lam⁸, Zamri Chik⁹ and Shin-Yee Fung¹⁰

Abstract

Purpose of study This study aimed to evaluate the safety and effectiveness of TM02® in improving health related quality of life (HRQoL) and fatigue in patients with localized breast cancer who had completed surgery and chemotherapy, addressing both acute and long-term side effects.

Methods This phase II randomized, double-blind, placebo-controlled study evaluated the efficacy and safety of TM02® supplementation in patients who had completed surgery and chemotherapy for localized breast cancer, using HRQoL scores. A total of 52 patients were randomized into two groups: (i) TM02® (n = 26; 1,040 mg daily for 6 months) and (ii) placebo (n = 26). HRQoL scores were assessed using the EORTC QLQ-C30 and QLQ-BR23 questionnaires at five time points. Fatigue scores were measured using the FACIT-Fatigue Scale, and the safety profile of TM02® was also evaluated. Data were analyzed on a per-protocol basis.

Shin sharing her journey of challenges and breakthroughs, and her publication

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