



NEWSLETTER

No. 8 September 2024



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TRIBHUVAN UNIVERSITY

Research Centre for Applied Science and Technology (RECAST)

व्यावहारिक विज्ञान तथा प्रविधि अनुसन्धान केन्द्र

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Editor:

Chandra Kanta Subedi, Ph.D.



Rhododendron anthopogon



Rhododendron anthopogon



Rhododendron barbatum



Rhododendron campanulatum



Rhododendron arboreum



Rhododendron arboreum



Rhododendron campylocarpum



Rhododendron cinnabarinum



Rhododendron arboreum



Rhododendron arboreum



Rhododendron lepidotum



Rhododendron setosum

1. Overview

The Research Centre for Applied Science and Technology (RECAST) was established on 8 September 1977 (BS 2034 Bhadra 23) under Tribhuvan University Act. The centre is primarily concerned with identification, improvement and adaptation, generation and dissemination of the technologies appropriate to optimum utilization of natural resources for the overall development of the country.

The objectives of the centre are:

- ❖ To undertake research for the identification, development, conservation, utilization and dissemination of local/indigenous technologies
- ❖ To search and identify novel technologies appropriate to Nepal and explore their prospects for technology transfer and adaptation
- ❖ To provide services for government, public, private, scientific and local communities, and
- ❖ To conduct research in basic and applied sciences.

The centre strives to establish collaboration with national and international academic institutions, industries, government agencies, private sector, and community-based organizations to address the country's needs through innovations and sustainable technological developments. RECAST contributes towards the nation's commitment to achieve the Sustainable Development Goals (SDGs) and to graduate to the status of a Developing Country.

The centre currently has 31 personnel including 14 full time faculty members, and 17 technical and administrative staffs.

The research areas of the centre include appropriate technologies designs and development, natural products, molecular science, biodiversity conservation, food and agriculture, materials science and nanotechnology. Researches has been conducted through the establishment of key laboratories and units which include:

1. Applied Biotechnology Laboratory
2. Applied Computational Sciences
3. Biodiversity and Nature Conservation
4. Documentation Unit
5. Food Technology Laboratory
6. Materials Science Laboratory
7. Nanotechnology Research Laboratory
8. Natural Products Laboratory
9. Mechanical Workshop

The faculty members of RECAST focus their research on national priority areas such as climate change and adaptation, disaster risk management, biodiversity, agriculture, tourism, entrepreneurship, development of technology and its uses, and science and technology.

2. Award/ Nomination/ Retirement

Mr. Girijamani Aryal, Assistant Professor was awarded the Ph.D. degree in Chemistry from the Institute of Science and Technology, Tribhuvan University (TU). The title of his research was research is 'Characterization of the Cellulosic Fiber Obtained from Nepalese Lokta Bushes and Explore its Novel Applications'.



Dr. Baburam Poudel was awarded the Belt and Road (BRI) Innovative Talent Foreign Expert Award by the Ministry of Science and Technology, People's Republic of China in 2023.

Emeritus Prof. Dr. Ram Prasad Chaudhary was renominated to The World Academy of Sciences (TWAS) Membership Advisory Committee (MAC) in Biological Sciences for the year 2024 (nomination continued since 2020).

Dr. Baburam Poudel was Nominated as a member for 'Co-creating Biodiversity Assessments' to be held from 27 October to 8 November 2024 at the São Paulo School of Advanced Science, São Pedro, State of São Paulo, Brazil.

The RECAST family congratulates awardees and nominees for their achievement and wishes for their bright academic career in the days to come.

Mr. Anil Kumar Aryal, Section Officer retired from TU service on 30 November 2023. Mr. Aryal served in RECAST for more than 36 years.



Mr. Ram Sundar K.C. retired from TU service on 14 June 2024. Mr. K.C. served in RECAST as Technical Assistant for more than 42 years.

The RECAST family expresses our sincere thanks to the retired personnel for their service. We also wish for their good health and active life ahead.

3. Current Activities

RECAST had a privileged of hosting 4 undergraduate research interns (Ms. Niamh Mulherin, Ms. Shannon Nicholson, Ms. Tahseen Umer, and Mr. Ziyue Wang) from the Department of Chemistry, University of Liverpool, United Kingdom for 6 weeks (from 13 June to 24 July 2024). The scientific, cultural and social activities of the researchers were supervised and coordinated by the researchers affiliated to RECAST and Central Department of Chemistry, Tribhuvan University. The overall hosting of the Liverpool researchers was coordinated by Prof. Dr. Rameshwar Adhikari and Prof. Dr. ML Sharma.



Prof. Dr. Ram Nath Prasad Yadav, the Executive Director, bid farewell to the students on 25 July 2024, after the successful completion of their research stay, expressing his heartfelt thanks for choosing RECAST as their research stay destination and requested them to act as a bridge between both the Universities. Prof. Binod Raj Joshi, the Executive Director of the Center for International Relations, Tribhuvan University, invited the researchers at his office, thanked them for their works at the University and extended the warm greetings to the University of Liverpool hoping for more fruitful collaboration and exchanges between the Universities in future.



A meeting was conducted in Kathmandu to implement the MoU signed between RECAST, Central Department of Geography, TU and University of Hamburg, Germany, on 24 May 2024. The meeting was attended by Mr. Binod Joshi, Executive Director, Centre for International Relations, TU, Emeritus Prof. Dr. Ram Prasad Chaudhary, Dr. Chandra Kanta Subedi, and Mr. Durga Pandey, RECAST; Prof. Dr. Umesh Kumar Mandal, Prof. Dr. Prem Sagar Chapagain, Prof. Dr. Narendra Khanal, Dr. Sobha Shrestha, and Dr. Chhabi L Chidi, Central Department of Geography; Dr. Achyut Tiwari, Central Department of Botany; and Prof. Dr. Udo Schickhoff, University of Hamburg Germany. Prof. Dr. Khadga K.C., Rector, TU witnessed the meeting. Prof. K.C. highlighted the developmental and academic support provided by the German Government to Nepal since long time. He was hopeful that the meeting and the collaboration established between the two universities would be exemplary. The meeting concluded with the decision to conduct Summer School by TU in Kathmandu and Winter School by University of Hamburg in Germany with the participation of students/researchers from both universities.



Inception Workshop of the project ‘Biodiversity Conservation and Disaster Risk Management in Nepal: Integrating Science-based Approach and Traditional Ecological Knowledge’ was conducted on 31 October 2023 at RECAST. There were 33 participants including experts representing academia (Central Department of Botany, Central Department of Environmental Science and Pulchowk Campus from TU, Faculty of Health Science and Technology, National Open University), International Union for Conservation of Nature (IUCN), Building Resilience Chure for Flood Project, Government Officials, and different stakeholders. On behalf of the research team, the Principal Investigator of the project Emeritus Prof. Dr. Ram Prasad Chaudhary, presented the research plan during the workshop.



4. Visits

Emeritus Prof. Dr. Ram Prasad Chaudhary, Dr. Ripu Mardan Kunwar, Shiva Pokhrel, and Rishav Adhikari visited Nawalpur District from 16 to 25 June 2024. The purpose of the visit was to collect data for the research 'Biodiversity Conservation and Disaster Risk Management in Nepal: Integrating Science-based Approach and Traditional Ecological Knowledge'. Similarly, Prof. Dr. Suresh Kumar Ghimire, Dr. Chandra Kanta Subedi, Namrata Belbase, and Sulochan Gyawali visited Rasuwa District from 16 to 25 June 2024 to collect data for the same project.



A field visit was conducted from 14 to 28 June 2024 to Putalibazar, Syangja under the project 'Kushechaur-Simriklek Agrimed Forest Tourism Education and Research Site Development'. The team comprised of Prof. Dr. Ram Nath Prasad Yadav, Dr. Deependra Parajuli, Rameshwar Shrestha, Jeet Lama, and other research assistants. During the visit stakeholder consultation, focus group discussion, key informant interview, vegetation enumeration, and soil sampling was carried out to collect baseline data for the research.



A joint team of researchers from RECAST and Germany visited Langtang Valley, Rasuwa District from 11 to 31 May 2024. The team comprised of Dr. Chandra Kanta Subedi, RECAST; Prof. Dr. Udo Schickhoff, Amrit Maharjan, Fenja Sevke, Luna Maxine Stocker, and Wanda Sophie Marfee Schmitz, University of Hamburg; and Rabindra Adhikari, Jan Hendrik Huber, Lisa-Marie Kunz, and Romina Granacher, University of Tübingen, Germany. The objective of the visit was to identify a suitable study site and collect data for TREELINE – II research.



Dr. Bijay Raj Subedee and Mr. Hari Gopal Chyashi visited textile industries in Delhi, Haryana, Panipat, and Calcutta from 7 to 22 April 2024 to test machinery for producing allo (*Girardinia diversifolia*) yarn. The visit demonstrated the feasibility of using machinery to increase allo yarn production, marking a significant step forward for Nepal’s textile industry.



Dr. Chandra Kanta Subedi and Dr. Baburam Poudel visited Panchthar, Taplejung, Rasuwa and Dhading Districts from 27 February to 13 March 2024 to collect medicinal plant samples under the project 'Population and Phytochemical Study of Some Commercially Threatened Medicinal Plants of Nepal Himalaya'.

Prof. Dr. Rameshwar Adhikari visited Chang-an University, Xian, China, from 25 December 2023 to 1 January 2024, within the framework of building scientific collaboration in the field of materials for environmental remediation.

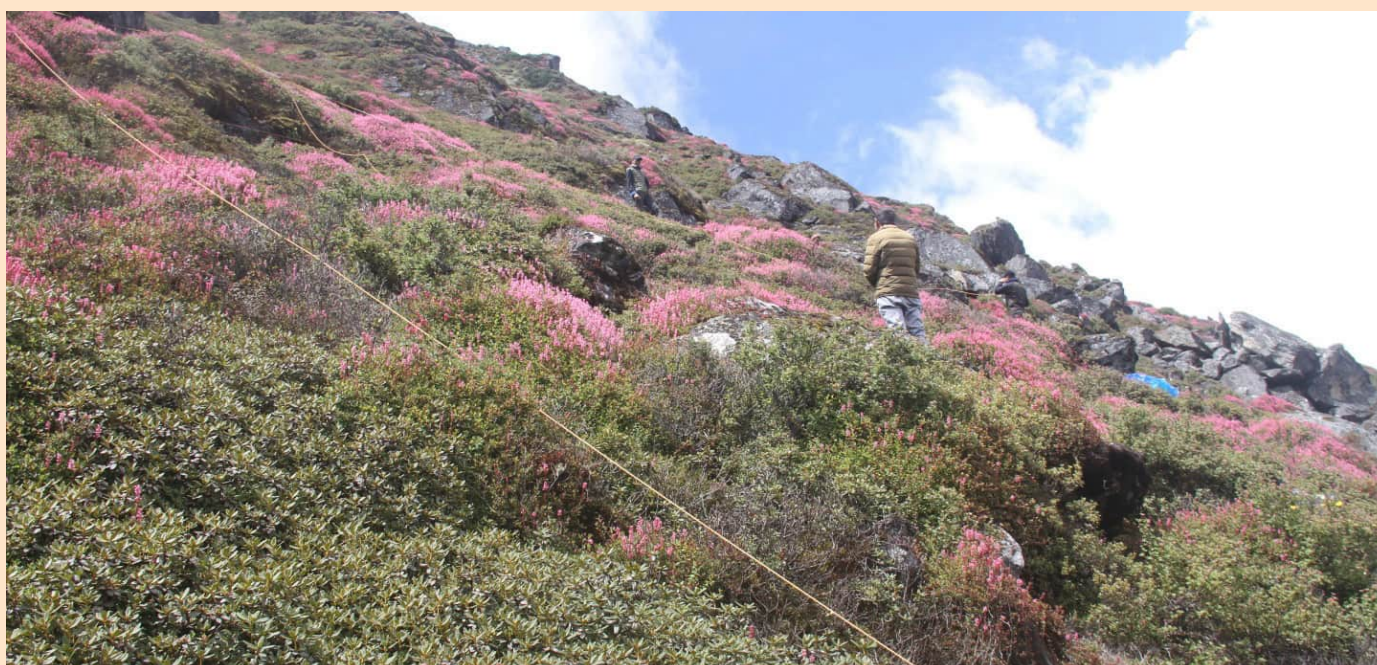
Emeritus Prof. Dr. Ram Prasad Chaudhary, Prof. Dr. Suresh Kumar Ghimire, Dr. Chandra Kanta Subedi, and Dr. Ripu Mardan Kunwar conducted a reconnaissance visit along the Trishuli River system, encompassing Gatlang in Rasuwa District, Rubi Valley in Dhading District, and Baghkhori in Nawalpur District, from 19 to 25 December 2023. The purpose of this visit was to pre-test and enhance the efficacy of survey instruments, and to finalize the selection of study sites under the project 'Biodiversity Conservation and Disaster Risk Management in Nepal: Integrating Science-based Approach and Traditional Ecological Knowledge'.



Emeritus Prof. Dr. Ram Prasad Chaudhary and Dr. Bijaya Raj Subedee, RECAST, Under Secretary Mrs. Bishnu Kumari Bhattarai, Micro, Cottage and Small Industry Promotion Center, Government of Nepal, and allo and natural fiber expert Mr. Hari Gopal Chyashi of Lumbu, Lalitpur, visited Bajura District from 2 to 8 November 2023 under the project 'Allo and Other Fiber-based Plants for Technical and Commercial Sustainability in Industrial Application of Nepal'. The visit aimed to evaluate the current conditions of fiber plants, analyze challenges and opportunities, document local perceptions on allo and hemp cultivation and usage, and specify legal frameworks for natural fiber development.



Dr. Chandra Kanta Subedi and Dr. Baburam Poudel visited Rolwaling Valley, Gaurishankar Conservation Area, Dolakha District from 1 to 22 September 2023 under the project ‘Sensitivity and Responses of Treeline Ecotones in the Nepal Himalaya to Climate Warming (TREELINE-II)’. The objective of the visit was to enumerate vegetation in the treeline ecotone.



Prof. Dr. Rameshwar Adhikari represented Nepal in the 52nd General Assembly of the International Union of Pure and Applied Chemistry (IUPAC) at The Hague, The Netherlands, from 18 to 25 August 2023 representing Nepal.

Prof. Dr. Rameshwar Adhikari was invited by the Alexander von Humboldt Foundation, Germany for a research stay in Germany for three months (August to October 2023) for collaborative research in the field of natural fibers and polymer composites. He visited Polymer Service GmbH, Merseburg, University of Halle, University of Siegen, Technical University of Dresden, and Institute for Polymer Research, Germany during his research stay.

5. Academic/Professional Contribution

Emeritus Prof. Dr. Ram Prasad Chaudhary, reviewed the book ICIMOD. (2023). *Water, Ice, Society, and Ecosystems in the Hindu Kush Himalaya: An outlook*. P. Wester, S. Chaudhary, N. Chettri, M. Jackson, A. Maharjan, S. Nepal, & J. F. Steiner (Eds.) as an external reviewer. <https://doi.org/10.53055/ICIMOD.102>

Emeritus Prof. Dr. Ram Prasad Chaudhary reviewed the book Rajbhandari, K.R., Rai, S.K., & Chettri, R. (2021). *A Handbook of Flowering Plants of Nepal, Volume 3*. Department of Plant Resources, Ministry of Forests and Environment, Kathmandu. ISBN: 978-9937-9248-8-7. <https://doi.org/10.3126/bdpr.v21i1.57300>

Prof. Dr. Rameshwar Adhikari played an active role as Chairperson in the organization of the Fourth 'International Conference on Infectious Diseases and Nanomedicine (ICIDN)', 15-18 December, 2023, in Kathmandu and 7th Young Scientists Summit (YSS), 5-6 February 2024.

Dr. Deependra Parajuli served as a Guest Editor on the *Journal of Alloys and Compounds*, an Interdisciplinary Journal of Materials Science and Solid-State Chemistry and Physics published by Elsevier B.V.

Dr. Deependra Parajuli served as an Associate Editor in *Prava Material Science Letters*, A Journal published by Ram Arti Publishers, India.

Dr. Baburam Poudel participated as a trainer/trainee on 'Biodiversity Pattern Assessment and Intelligent Monitoring Systems in the Belt and Road Regions' from 9 to 26 October 2023 jointly organized by the Institute of Zoology, Chinese Academy of Sciences, Beijing, Canzhou Normal University, Canzhou, and Hebei Agricultural University, Baoding, China.



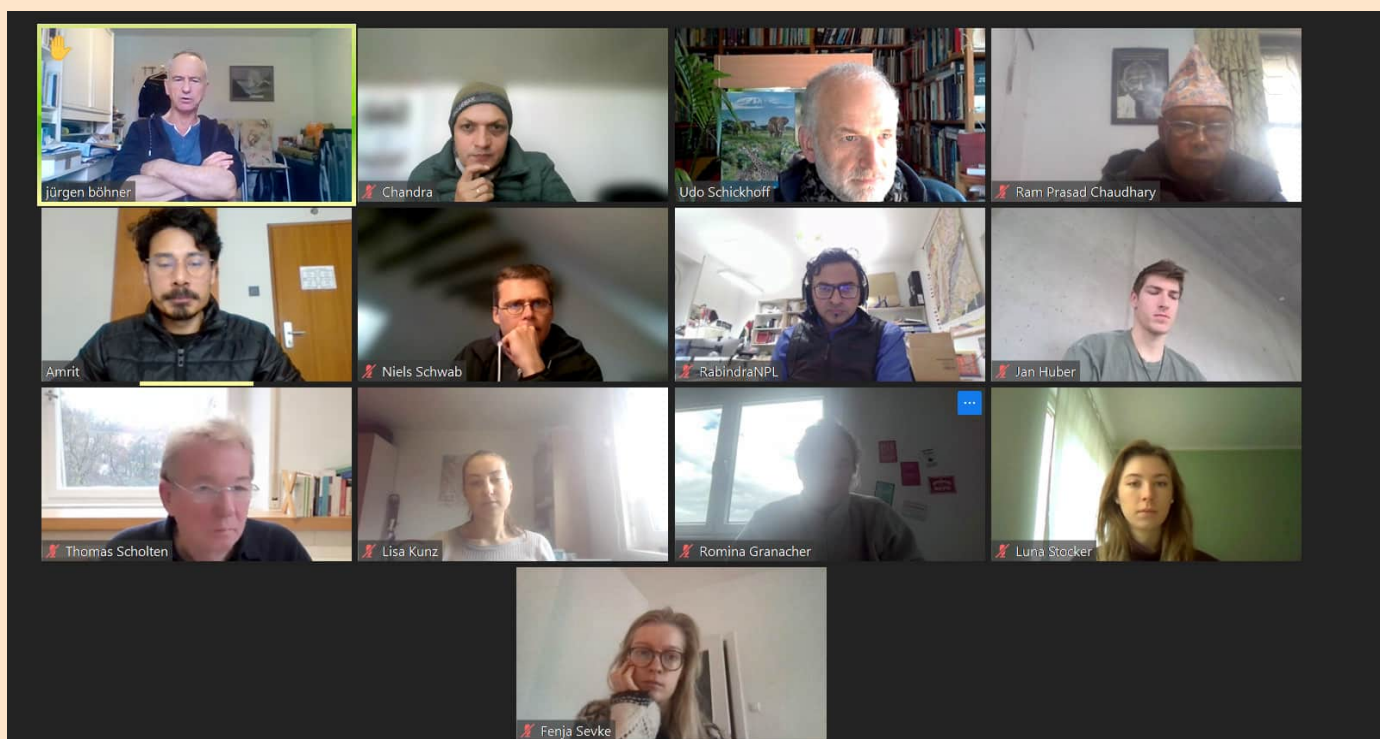
Dr. Baburam Poudel served as a visiting scientist/foreign expert at the School of Life Sciences, Central China Normal University, Wuhan, China from 23 December 2023 to 20 January 2024.



6. Collaboration

RECAST collaborated with national and international academic institutions to carry out research activities in different disciplines focusing on science and technology.

A research collaboration was established effective from 2022 to 2025 with the University of Hamburg, and University of Tübingen, Germany, to undertake research on the treeline vegetation in the Nepal Himalaya under the project 'Sensitivity and Responses of Treeline Ecotones in the Nepal Himalaya to Climate Warming (TREELINE-II)'. This is continuation of the collaboration that was initiated in 2013. Currently, research is ongoing in the Rolwaling Valley, Gaurishankar Conservation Area, Dolkha District, and the Langtang Valley, Langtang National Park, Rasuwa District.



A **Letter of Agreement (LoA)** was signed between RECAST and Central Department of Botany, TU, to establish and formalize collaboration between the two institutions focusing on enhancing teaching, education, training and research in the fields of ecology, conservation of biodiversity, sustainable use and management of natural resources and livelihoods, traditional/indigenous knowledge, bioprospecting, environment and climate change, and policy assessment as well as strengthening the capacity of both institutions to undertake collaborative research. Three Masters students and one PhD student of the Central Department of Botany are involved in the project 'Biodiversity Conservation and Disaster Risk Management in Nepal: Integrating Science-based Approach and Traditional Ecological Knowledge' under RECAST within the framework of this LoA.

A **Letter of Agreement (LoA)** was signed between, RECAST, Central Department of Geography, TU and Institute of Geography, University of Hamburg, Germany. The objective of this agreement is to establish and formalize collaboration between the signed parties for enhancing education, training and research in the field of geography and sustainable use and management of natural resources, in particular environmental geography, biogeography, ecology and biodiversity conservation, as well as strengthening capacity of the two institutions.

Beyond the institutional level, faculty members of RECAST also collaborate with national and international institutes/organizations to conduct joint research. Some of these collaborations in faculty level include with:

- Institute of Zoology, Chinese Academy of Sciences
- School of Life Sciences, Central China Normal University, Wuhan, China
- Ministry of Science and Technology, People's Republic of China
- University of Applied Sciences, Merseburg, Germany
- Martin Luther University Halle-Wittenberg, Germany
- Fraunhofer Institute Halle, Germany
- Institute of Polymer Research, Dresden, Germany
- University of Siegen, Germany
- University of Saarbrücken, Germany
- University of Applied Sciences, Hof, Germany
- S. K. Porwal College, Kamptee, Nagpur, India
- Kyoto Institute of Technology, Kyoto, Japan
- Indian Institute of Technology, Guwahati, India
- College of Science and Technology, Andhra University, India
- Central Department of Physics, Kirtipur, Kathmandu, Nepal
- Tri-Chandra Multiple Campus, Ghantaghar, Kathmandu, Nepal
- School of Science, Kathmandu University, Dhulikhel, Nepal
- Nepal Academy of Science and Technology, Kathmandu, Nepal
- Central Department of Chemistry, Kirtipur, Kathmandu, Nepal
- College of Biomedical Engineering, SANN International College, Nepal
- Purwanchal University, Biratnagar, Nepal
- Mid-western University, Surkhet, Nepal
- Kathmandu University, Dhulikhel, Nepal

7. Current Research Projects

Investigator (s)	Title	Supported by	Nature of grant	Duration
Emeritus Prof. Dr. Ram P Chaudhary (PI) Prof. Dr. Suresh Kumar Ghimire (Co-I) Dr. Chandra Kanta Subedi (Co-I)	Biodiversity Conservation and Disaster Risk Management in Nepal: Integrating Science-based Approach and Traditional Ecological Knowledge	Research Coordination and Development Council (RCDC), Rector's Office, Tribhuvan University, Kirtipur, Nepal	Innovative Research Grant	2023-2026
Prof. Dr. Mina Rajbhandari (PI) Dr. Baburam Poudel (Co-I) Dr. Dipesh Pyakurel (Co-I) Emeritus Prof. Dr. Ram P Chaudhary (Consultant) Dr. Chandra Kanta Subedi (Consultant)	Population and Phytochemical Studies of Commercially Threatened Medicinal Plants in Nepal Himalaya	Research Coordination and Development Council (RCDC), Rector's Office, Tribhuvan University, Kirtipur, Nepal	Innovative Research Grant	2022-2025
Emeritus Prof. Dr. Ram P Chaudhary (Coordinator) Dr. Chandra Kanta Subedi (Post Doc Fellow) Dr. Baburam Poudel (Research Associate)	Sensitivity and Response of Treeline Ecotones in the Nepal Himalaya to climate Warming (TREELINE-II)	University of Hamburg, University of Tübingen, Germany	Treeline Research	2013-2026
Dr. Deependra Parajuli	M Substitution Effects on Structural, Morphological, and Magnetic Properties of $\text{SrFe}_{12-x}\text{M}_x\text{O}_{19}$ (M=Ag, Cu, Ni) Materials for Electronic Appliances	UGC, Nepal	Faculty Research Grant	2023-2024

Dr. Deependra Parajuli	Kushechaur-Simriklek Agrimed Forest Tour Education and Research Site Development Project-2022.	Putlibazar Municipality, Syanjga	Research	2022-2024
Prof. Dr. Rameshwar Adhikari Dr. Mukti Ram Paudel	Comprehensive Identification and Characterization of Lignocellulosic Natural Fibers of Nepal	Tribhuvan University, Endowment Fund	Collaborative Research	2022-2024
Dr. Bijay Raj Subedee (PI) Emeritus Prof. Dr. Ram P Chaudhary (Consultant)	Study of Allo and Other Fiber-based Plants for Technical and Commercial Sustainability in Industrial Applications of Nepal	Micro, Cottage and Small Industry Promotion Center, Ministry of Industry, Commerce, and Supplies, Government of Nepal	Research	2023- 2024
Dr. Shankar Khatiwada	Measurement of Pollution Level in Sisdol Landfill Site	Kathmandu Metropolitan City	Research	2023–2024
Prof. Rameshwar Adhikari, Deepshikha Karki, Bimal Rajchal, Yub Narayan Thapa	Development of Polymeric Liquid Bandage Infused with <i>Yashad Bhasma</i> and Zinc Oxide Nanoparticles for Enhanced Wound Healing	Ministry of Education, Science and Technology	Research	2024

8. New Scientific Instruments

In the frame of the project (Developing New Composite Material by Blending Waste Commodity Plastics with Natural Fibres) funded by the Ministry of Education, Science and Technology (MoEST), new scientific instruments (namely the fibres-disintegrator, low-temperature refrigerator, and analytical balances) have been purchased.

12 core CPUs, Tubular furnace (1800°C) with vacuum system, and Hydraulic Palletizer were funded by TU.



12 core GPUs with Enhanced Monitor for Computational Facility



Tubular furnace



Manuel Palletizer



9. Participation and Presentation at Training /Seminar/Workshop/Conferences

Emeritus Prof. Dr. Ram Prasad Chaudhary, gave a talk on 'Ethical Issues in Plant Science Research and Scientific Writing' at the Scientific Writing Training Programme organized by Forest Research & Training Centre, Ministry of Forests and Environment on 31 May 2024 in Kathmandu, Nepal.

Prof. Dr. Rameshwar Adhikari visited the Spanish National Research Council (CSIC) in Madrid, Spain, from 27 to 31 May 2024 and presented a short course lecture on 'Polymer Characterization' for young researchers during the POLY-CHAR International Conference.

Prof. Dr. Rameshwar Adhikari delivered key note lecture at the 'Young Scientists Conference', 9-10 May 2024 at Mid-western University, Surkhet, Nepal.

Prof. Dr. Rameshwar Adhikari delivered key note lectures at the International Conference on 'Advanced Sustainable Futuristic Materials' from 26 to 27 April 2024 in Kamla Nehru Mahavidyalaya, Nagpur, India.

Prof Dr. Meena Rajbhandari participated in National Academy of Science and Technology (NAST) Workshop on indigeneous technology in Lumbini Province, Dang on 4 April 2024 and delivered a talk on 'Natural and Synthetic Dyes: their Impact on Human Health'.

Emeritus Prof. Dr. Ram Prasad Chaudhary presented on behalf of the team (G. Basnet & B. Khand) the 'Mid-term Review on NTNC Strategic Plan, 2020-2025' during their 70th Meeting of the Governing Board of Trustees from 25 to 26 March 2024 at the National Trust for Nature Conservation headquarters in Kathmandu, Nepal.

Emeritus Prof. Dr. Ram Prasad Chaudhary delivered a talk on 'Literature Review – Tips for Academic Research and Writing' and a Hands-on Session in the Research Capacity Enhancement Program, from 17 to 21 March 2024 organized by University Campus, TU.

Dr. Bijaya Raj Subedee, Dr. Chandra Kanta Subedi, and Dr. Deependra Parajuli participated in the Training on Research Capacity Enhancement Program, from 17 to 21 March 2024 organized by University Campus, TU.

Prof. Dr. Rameshwar Adhikari visited Government V.Y.T. PG Autonomous College, Durg, CG, India and delivered an invited talk at the international conference 'Recent Trends in Science and Engineering', from 8 to 10 February 2024 and was felicitated as Guest of Honor during the closing ceremony of the conference.

Dr. Deependra Parajuli delivered a lecture on 'Biowaste Derived Electrode Materials for Supercapattery Applications' in the international conference on Energy Materials and Rechargeable Batteries (ICEMRB-2023) held in the School of Sciences (Physics) & University Instrumentation Center, Faridabad, India from 19 to 22 December 2023 as an Invited Speaker.



Dr. Deependra Parajuli delivered a lecture on ‘Investigations on Materials for Energy and Energy Efficient Devices’ in Andhra University Alumni Association, Department of Physics, Andhra University, Visakhapatnam, India on 11 October 2023 as an Invited Speaker.



Dr. Deependra Parajuli delivered a lecture on ‘Microscopic and spectroscopic study of some electrode materials used in Lithium-Ion Batteries and Supercapattery’ in the 20th International Microscopy Congress (IMC20), BEXCO, held in Busan, Republic of Korea from 10 to 15 September 2023 as an Invited Speaker.



Emeritus Prof. Dr. Ram Prasad Chaudhary delivered a keynote speech on ‘Roadmap and Pathways of Research Centers of Tribhuvan University, Nepal with emphasis on Research Centre for Applied Science and Technology (RECAST)’ on the 46th RECAST Day held on 09 September 2023 at Tribhuvan University, Kirtipur, Nepal.

10. Publications

Acharya, A., Khanal, M., Maharjan, R., Gyawali, K., Luitel, B. R., **Adhikari, R.**, ... & Lamichhane, H. P. (2024). Quantum chemical calculations on calcium oxalate and dolichin A and their binding efficacy to lactoferrin: An in silico study using DFT, molecular docking, and molecular dynamics simulations. *AIMS Biophysics*, 11(2), 142-165. <https://doi.org/10.3934/biophy.2024010>

Adhikari, H. S., Dhakal, K. N., & **Adhikari, R.** (2023). Physicochemical parameters and their toxicity level for recreational activity and plaque psoriasis healing effects of hot spring water of Kharapani, Pokhara, Nepal. *Journal of Engineering and Sciences*, 2(1), 127-135. <https://doi.org/10.3126/jes2.v2i1.60531>

Adhikari, J., & **Adhikari, R.** (2023). Free and open source codes for computational chemistry research initiation: A Conspectus. *Journal of Nepal Chemical Society*, 43(2), 11-22. <https://doi.org/10.3126/jncs.v43i2.53337>

Adhikari, S., Parajuli, K., Karki, G. B., Khatiwada, S. P., & **Adhikari, R.** (2023). Structural, optical and antimicrobial properties of carbohydrate-capped cadmium sulfide nanoparticles. *Journal of Nepal Chemical Society*, 43(2), 1-10. <https://doi.org/10.3126/jncs.v43i2.53336>

Aryal, G.M., Kandel, K. P., Adhikari, M., Evans, J., Dangol, H., Poudel, M., Pokharel, S., Shrestha, R., Gautam, B., & Neupane, B. B. (2024). Understanding the material properties of alkali-treated lignocellulose fibre obtained from high- altitude Lokta bushes. *Biomass Conversion and Biorefinery*. <https://doi.org/10.1007/s13399-024-05278-x>

Basaula, R., Sharma, H.P., **Paudel, B.R.**, Kunwar, P.S., & Sapkota, K. (2023). Effects of invasive water hyacinth on fish diversity and abundance in the Lake Cluster of Pokhara Valley, Nepal. *Global Ecology and Conservation*, 46: e02565. <https://doi.org/10.1016/j.gecco.2023.e02565>

Bhandari, T. R., Thapa, Y. N., Dhakal, C., & **Adhikari, R.** (2023). MXenes-based multifunctional nanomaterials for lithium-ion batteries: Opportunities and challenges. *Nanoscience & Nanotechnology-Asia*, 13(5), 51-61. <https://doi.org/10.2174/2210681213666230911161526>

Bharathi, R. V., Raju, M. K., Shanmukhi, P. S. V., Kiran, M. G., Murali, N., **Parajuli, D.**, Mammo, T. W., & Samatha, K. (2023). Enhanced DC electrical resistivity and magnetic properties of transition metal cobalt substituted spinel MgFe₂O₄ ferrite system. *Inorganic Chemistry Communications*, 158, 111713. <https://doi.org/10.1016/J.INOCHE.2023.111713>

Bürkel, P., **Rajbhandari, M.**, Jürgenliemk, G. (2023). *Bassia longifolia* (*Madhuca longifolia*): Isolation of flavan-3-ols and their contribution to the antibacterial and antidiabetic activity in vitro. *Heliyon*, 9 (11), e21134. <https://doi.org/10.1016/j.heliyon.2023.e21134>

Chaudhary, N., Ghimire, S.K. & **Chaudhary, R.P.** (2023). Traditional Amchi medicinal practice in trans-Himalaya of Nepal: Conservation and bioprospecting. In: Arunachalam, K. Yang, X. & Sasidharan, S.P. (Eds.), *Bioprospecting of Tropical Medicinal Plants*, (pp. 307 – 327). Springer Nature, Switzerland AG. https://doi.org/10.1007/978-3-031-28780-0_11

Chaudhary, R.P., Basnet, G.B., Rai, S.K., Limbu, D.K., Maharjan, R., & Rai, B. (2023). Ethnic Alcoholic Beverages of Nepal Himalaya. In: Mérillon, J.M., Riviere, C., & Lefèvre, G. (Eds.), *Natural Products in Beverages*. Reference Series in Phytochemistry (pp.1-34). Springer, Cham. https://doi.org/10.1007/978-3-031-04195-2_162-1

- Chaudhary, R.P.**, Joshi, S.P., Rimal, S.K., Belbase, N., & **Subedi, C.K.** (2024). Plant diversity conservation in the Nepal Himalaya: Status, policies, and legislative frameworks. In: Rokaya, M.B., & Sigdel, S.R. (Eds.), *Flora and Vegetation of Nepal. Plant and Vegetation*, (pp. 383-447). Springer, Cham. https://doi.org/10.1007/978-3-031-50702-1_15
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पराजुली दिपेन्द्र, र पौडेल विन्दु (२०२३), बुद्धको ज्ञानले के दिन्छ— सम्प्रदाय, धर्म, वा जीवनपद्धति ? *प्रज्ञा दर्शन*, ५(२), ९०–९७ । <https://doi.org/10.3126/PDMDJ.V5I2.59628>

11. Dissertation Supervision

Supervisor	Student Name	Dissertation Title	Degree/College	Year of Completion
Dr. Rameshwar Adhikari	Akash Rijal	Investigations into traditional Nepali papers prepared from different lignocellulosic sources	M. Sc. / Central Department of Chemistry, TU	2024
Dr. Rameshwar Adhikari	Nelson Rai	Effect of chemical treatment on physiochemical properties of water hyacinth fibers	M. Sc. / Central Department of Chemistry, TU	2024
Dr. Rameshwar Adhikari and Dr. Nootan Bhattarai	Manish Man Shrestha	Structural, antimicrobial, and antioxidant properties of <i>Gnetum montanum</i> fibers	M. Sc. / Central Department of Chemistry, TU	2024
Dr. Nootan Bhattarai and Dr. Rameshwar Adhikari	Dikshya Suwal	Structural and antibacterial properties ZnO nanoparticles doped Banana fibers	M. Sc. / Central Department of Chemistry, TU	2024
Dr. Sushika Mulmi and Dr. Rameshwar Adhikari	Om Prakash Basyal	Physicochemical and biological properties of Agave cuticle	M. Sc. / Central Department of Chemistry, TU	2024
Dr. Rajesh Pandit and Dr. Rameshwar Adhikari	Nita Sapkota	Material scientific investigations into Nepalese Thangka painting	M. Sc. / Department of Chemistry, Tri-Chandra Campus, TU	2024
Dr. Rajesh Pandit and Dr. Rameshwar Adhikari	Manisha Dahal	Materials scientific investigations into some traditional Nepalese writing inks	M. Sc. / Department of Chemistry, Tri-Chandra Campus, TU	2024
Dr. Netral Lal Bhandari and Dr. Rameshwar Adhikari	Basanta Aidi	Multi-walled carbon nanotubes and polypyrrole impregnated cellulose fibers	M. Sc. / Department of Chemistry, Tri-Chandra Campus, TU	2024
Dr. Sharmila Pradhan and Dr. Rameshwar Adhikari	Umesh Subedi	Effect of surface modification methods on properties of natural fibers	M. Sc. / Department of Chemistry, Amrit Campus, TU	2024
Dr. Sabita Shrestha and Dr. Rameshwar Adhikari	Dr. Sonam Tamang	Functionalization of nanocarbons of different dimensionalities and study the physical properties of their nanocomposites with the thermosetting polymer	Ph. D. / Central Department of Chemistry, TU	2024
Dr. Babu Ram Paudel	Priscilla Gautam	Population status and harvest practice of <i>Nardostachys jatamansi</i> in Jumla	M.Sc./Amrit Campus, Lainchour	2024
Dr. Babu Ram Paudel	Asmita Adhikari	Population status and harvest practice of <i>Polygonatum cirrhifolium</i> in Jumla	M.Sc./Amrit Campus, Lainchour	2024
Dr. Deependra Parajuli	Rajan Dev Panta	Study of photo electronic properties of ZnO nanoparticles synthesis by chemical method	M.Sc./Central Department of Physics, Kirtipur	2024