ANNUAL RESEARCH REVIEW 2022

MINISTRY OF EDUCATION

NATIONAL INSTITUTE OF FUNDAMENTAL STUDIES

WE ARE THE PREMIER INSTITUTE FOR ADVANCING FUNDAMENTAL SCIENCES

OUR VISION

TO BE A WORLD RENOWNED CENTER OF EXCELLENCE FOR RESEARCH IN FUNDAMENTAL STUDIES

OUR MISSION

INITIATE, PROMOTE AND ENGAGE IN ADVANCED RESEARCH IN FUNDAMENTAL STUDIES FOR THE ENHANCEMENT OF SCIENTIFIC KNOWLEDGE AND DEVELOPMENT OF HUMAN RESOURCES CONTRIBUTING TO NATIONAL DEVELOPMENT.

Message from the Chairman

I am delighted to provide this message to the Annual Research Review in my capacity as the Chairman of the National Institute of Fundamental Studies. The Annual Research Review is of critical importance as it leads us to reflect on what we have been doing for the past year, identify and consolidate our strengths, and minimise our weaknesses or limitations. It also gives us a good platform for revising our strategies and direction. A strategy captures opportunity; it is not static but a dynamic process.

In light of the current socio-economic crisis in the backdrop of an unprecedented global pandemic, COVID-19, the challenges we have to face have increased. We must therefore review our research and the strategies we have to adapt to face these new challenges.

Therefore, we will have to think about the impact of our research beyond academic impact.

According to the Higher Education Funding Council for England (HEFCE), "Impact is defined as an effect on, change or benefit to the economy, society, culture, public policy or services, health, the environment or quality of life, beyond academia."

Research impact has many definitions. The European Commission defines it as "A change or a benefit to the economy, society, culture, public policy or services, health, the environment or quality of life". A one-word definition is simply benefiting: how our research benefits society and the economy.

Here we distinguish between 'academic impact', considered the research knowledge contribution to a field of study within academia, and 'non-academic impact', impacts beyond academia. It is defined as follows: 'academic impact is the demonstrable contribution that excellent research makes to academic advances, across and within disciplines, including significant advances in understanding, method, theory and application. The societal and economic impact is the demonstrable contribution that excellent research makes to society and the economy, benefiting individuals, organisations and nations.

Economic and societal impacts embrace all the extremely diverse ways in which research-related knowledge and skills benefit individuals, organisations and nations by fostering global economic performance (competitiveness), increasing the effectiveness of public services and policy, and enhancing the quality of life, health and creative output.

Under these circumstances, we need a culture shift to move towards research for people's benefit. We are free education products, use public knowledge, and use public money; we, the scientists, should therefore be held accountable to people and society.

I would like to thank the organising committee for asking me to share my thoughts. I would like to propose new dimensions for Annual Reviews in the years to come to review science and the process.

I congratulate the Organising Committee for the spirit and courage shown in organising this event.

Prof. Athula Sumathipala
MBBS, DF.MD, FRCGP (Sri Lanka), FRCPsych, CCST(UK) PhD (Lon)
Chairman
National Institute of Fundamental Studies, Sri Lanka

Message from the Director

It is a great pleasure to issue this message on the occasion of the 2022 Annual Research Review. The Institute of Fundamental Studies (IFS) was established in 1981 and later renamed the National Institute of Fundamental Studies (NIFS) Sri Lanka in 2014. NIFS is the only national institute with the main objective of engaging in scientific research to facilitate fundamental and advanced studies with an emphasis on basic and applied research for national development and the advancement of science.

Annual Research Review (ARR) is the most important event on the NIFS calendar. ARR2022 is held to review the progress of scientific research carried out by the NIFS during the year 2022. At the research review, we review the progress of the scientists as well as the research programmes conducted during the year.

Five senior research professors, two research professors, three associate research professors, two senior research fellows, and a research fellow serves the institute. In addition, forty-one research assistants, two visiting research professors, and several adjunct professors work with our scientists. NIFS scientists published 77 research papers in referred journals, including SCI/SCI Expanded journals, and 92 conference papers/abstracts in 2022. Ten research assistants obtained their PhD/M.Phil. degrees. In addition, 26 M.Sc. students and undergraduate students completed their research projects at NIFS. Our scientists also received prestigious awards, including two life awards, three international awards, one national and one gold medal. We spent twenty-one million LKR from our budget for 18 ongoing research projects. Science Education and Dissemination Unit (SEDU) completed a successful year by conducting several science popularization programmes. Among them, NIFS Open Day was well accepted by the general public, and more than 2500 participants, including school and university students, witnessed the event. Our scientists contributed to national development by participating in many activities/programmes as consultants and committee members.

Research, administrative, technical, and other staff members of the institute contributed to the success of the event. I should thank all the members of the NIFS for their commitment and dedication. Finally, I wish all the success for ARR 2022.

Professor. S. R. Kodituwakku
Director & CEO/ NIFS
National Institute of Fundamental Studies

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SECTION I – RESEARCH PROGRAMMES

Project leaders are responsible for the authenticity of the reports they have submitted

Evolution, Ecology & Biodiversity Research Programme

Prof. Suresh P. Benjamin ***Research Professor***
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Research Project Introduction:
Basic research in biodiversity covers every aspect of ecosystem function with a special focus on the Western Ghats-Sri Lanka biodiversity hotspot. Tropical mountains have high numbers of endemic species. The central highlands of Sri Lanka are no exception. We estimate that more than 90% of the invertebrate species are still unknown to science and remain to be discovered. Many species are endemic to single mountain peaks. They also might be endangered due to the changing climate.

Research Activities:
The following research activities were undertaken.1, Molecular phylogeny of cobweb spiders with a revision of selected genera (Araneae: Theridiidae) of Sri Lanka based on morphology and using target gene analysis. The taxonomy and the phylogenetic relationships of the genera Argyrodes, *Rhomphaea*, *Neospintharus*, *Chikunia*, *Coleosoma* and *Meotipa* were studied. 2, Taxonomic revisions and descriptions of jumping spiders of Sri Lanka based on morphology and target gene analysis (Araneae: Salticidae) from Sri Lanka. Salticidae is the largest family of spiders and currently includes around 6183 species placed in 646 genera distributed worldwide. The genera *Ballus*, *Colaxes*, *Marengo Carrhotus*, *Epidelaxia*, *Telamonia* and *Thyene* were revised. 3, Molecular phylogenetic relationships of selected crab spider genera (Araneae: Thomisidae) from Sri Lanka. Objectives of this project are to gain a comprehensive understanding of the crab spider biodiversity of the island, re-circumscribe genera in phylogenetic terms and placement of these genera in the thomisid tree of life.

Results/Key findings:
We show that multiple species delimitations approach with COI barcodes poorly fit each other and morphospecies. The origin and diversification of free-living stick spiders of the genera *Rhomphaea* and *Neospintharus* were completed and published in PLoS ONE. The Phylogenetic placement of *Carrhotus* was published. The beetle-spider genus *Ballus* was revised using DNA barcodes. Molecular and morphological species delimitation suggested that only a single species of *Ballus* was present in Sri Lanka. Nine species of spiders and ten species of *Sericini* (Coleoptera, Scarabaeidae) were discovered. Seven of the newly described species belong to endemic radiation on the island.

From L to R: Ms. N.M.M.D.D. Mannaperuma, Mr. D.N.G. Dayananda, Prof. S.P. Benjamin, Mr. N.P. Athukorale

Food Chemistry Research Programme

Prof. J. M. Nazrim Marikkar ***Associate Research Professor***
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Research Project Introduction:
The food chemistry project investigates various aspects of chemistry's application to food systems. In 2022, attention was focused on three sub-themes: food authentication, enzyme-inhibitory activities of edible plants and *Stevia rebaudiana* as a herbal supplement for sugar substitution in foods.

Research Activities:
Under food authentication, the project developed quantitative models for predicting palm olein adulterations in coconut testa oil using different analytical approaches. Searching for therapeutics from local plant sources is a research area of national interest. As traditional medical scriptures recommend the consumption of leafy plants in managing diabetes and obesity, a study was undertaken on several under-utilized edible leafy plants in Sri Lanka. Le-kola pala (*Premna procumbens* Moon), Koppa (*Polyscias scutellaria* Fosberg), Stevia *(Stevia rebaudiana* Bertoni),), Yaki naran (*Atlantia ceylanica*), and Kora kaha (*Memecylon umbellatum*) were a group of plants subjected to screening for anti-diabetic effect and anti-obesity properties. The project has also taken research initiatives to search for alternatives to fermentable sugar. *Stevia rebaudiana*, for instance, is a herbal supplement used as a substitute for sugars in food processing. Under this sub-theme, an assessment was undertaken to replace cane sugar with stevia leaf powder to formulate low-calorie cookies.

Results/Key findings:
The food authentication study demonstrated that quantitative models could be developed for the prediction of adulteration in CTO based on deviations in the fatty acid compositions and thermal transitions in DSC heating and cooling curves. Screening of the under-utilized plants showed that they had the ability to play a major role as anti-hyperglycemic agents. The *Stevia* sub-project showed that grounded samples of stevia leaf powder could be an effective substitute for sugar in preparing low-calorie cookies for diabetic patients.

From L to R: Ms. H.F. Fahmidha, Prof. J.M.N. Marikkar, Ms. B.S.K. Ulpathakumbura

Microbial Biotechnology Research Programme

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Research Project Introduction:
In 2003, the NIFS invented a novel biofertilizer called Biofilm biofertilizer (BFBF) for non-legumes. For paddy, this can cut down up to 50% of chemical fertilizers (NPK) and also organic fertilizer under farmers' practices. The BFBF can increase paddy yields by about 20-30% on average. Field-based research trials have been done by us in collaboration with the Department of Agriculture (DOA). BFBF has been recommended by the DOA and approved by the Cabinet of Ministers.

Research Activities:
In 2022, we conducted initial field research studies in small plots to examine the potential of fully using the BFBF with organic and mineral fertilizer sources to replace chemical fertilizers (CF). The treatments comprised with BFBF with nutrient-rich granular composts and BFBF with CF practice. In the commercial program of BFBF, paddy was successfully cultivated over 280,000 acres with reduced doses (up to 50%) of CF and also organic fertilizers, with about 20% grain yield increase in Kurunegala, Kilinochchi, Vavuniya, Mulativ, Mannar, Galle and Gampaha districts. In addition, we continued the other main research program, Biofilm medicines. Here, the identification of biochemicals secreted by the developed biofilms was continued.

Results/Key findings:
It was found that we can replace CF applied with BFBF by using organic and mineral fertilizer sources. It was also observed that soil carbon sequestration is significantly increased with the BFBF practice, which has implications in carbon trading. These trials should be expanded to large field plots in future. In the Biofilm medicines study, several important biochemicals in medicines and the environment were identified.

From L to R: Ms. T.K. Agalawela, Dr. U.M.B. Premarathna, Mr. G.P.A.K. Pathirana, Prof. G. Seneviratne, Mr. S. Ekanayake, Mr. G.P.R.D. Pathirana, Ms. S.H. Jayasekara

Microbiology & Soil Ecosystems Research Programme

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Research Project Introduction:
The main objective of the soil ecosystems research project is to determine soil carbon sequestration potential, its dynamics, and the method of improvement in different major vegetation types of Sri Lanka. The information is vital to reveal the ecosystem services related to climate change mitigation and supply firsthand information to establish a national carbon accounting system in Sri Lanka. The microbiology research project focuses on the diversity evaluation of cyanobacteria in extreme ecosystems, the value addition of locally isolated microalgae for nutrient-based applications and biodiesel production.

Research Activities:
A study was completed to develop a baseline soil information system for soil C and other macro-, and micro-nutrients for paddy-growing soils in Sri Lanka. The potentiality of blue carbon ecosystems (mangroves and salt marshes) was studied in the Northwestern and northern coastal belts. A study was initiated to assess soil carbon sequestration, nutrient retention, and heavy metal deposition in ecologically important urban wetland ecosystems. The genetic diversity of cyanobacteria was investigated in some selected extreme ecosystems of Sri Lanka with their taxonomical identification, nutrient profiling, and toxin analysis. Studies continue on nutrient profiling of selected strains and short-term and long-term preservation of isolates through sub culturing and cryopreservation. The cyanobacteria specific culture collection was further improved with new isolates. A project was initiated to study the use of cyanobacteria in the cosmetic industry and wastewater remediation. A project was initiated to mass culture nutrient-rich cyanobacteria for the food industry and microalgae for biodiesel production.

Results/Key findings:
Digital soil carbon maps have been developed using novel modelling techniques representing entire paddy-growing areas in the country. A rigorous multivariate statistical approach was developed to identify the complex interrelationships prevailing in different soil carbon pools with their macro and micro-environmental drivers and spatial dependence. Further, a digital soil organic carbon map was generated based on mangrove zonation in the major river basins of Palakaimunai and the tidal mudflats over the region. The genetic diversity of cyanobacteria in selected extreme ecosystems was evaluated and already identified nutrient-rich cyanobacteria strains were confirmed at the molecular level. A food grade *Spirulina* strain was identified for outdoor culturing as a food substitute. A laboratory scale study on biodiesel production using microalgae has been completed.

From L to R: Mr. D.M.N.B. Dissanayake, Ms. A.L.S.S. Wijesundara, Ms. S.M.D.C. Bandara, Ms. T.M. Paranavithana, Ms. R.C.K. Karunaratne, Prof. R.R. Ratnayake, Ms. W.A.B.M. Samarajeewa, Ms. T.K. Bowange, Mr. M.A. Lal

Molecular Microbiology & Human Diseases Research Programme

Prof. D.N Magana-Arachchi ***Associate Research Professor***
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Research Project Introduction:
Microbes are an incredibly diverse group of fascinating creatures. Our project has opened up new approaches to studying the diversity of microbes in the air, water, soil, and human body. We mainly focus on both communicable and non-communicable diseases that affect humans globally and locally and try to understand these scientific issues at the molecular microbiological scale. We employ advanced analytical and molecular techniques and bioinformatics tools to achieve our objectives.

Research Activities:
The main research activities of the year 2022 were based on the genetic characterization of drug-resistant (DR) *Mycobacterium tuberculosis* isolates from Sri Lankan and Pakistani tuberculosis (TB) patients and identification of associated biomarkers for TB, Transcriptome analysis of mycobacteria in serum exosomes of latent tuberculosis patients for candidate biomarker identification, identification of urinary biomarkers for diabetic and hypertensive Chronic Kidney Disease (CKD) in Sri Lanka and enrichment mechanisms of CKDu- risk factors in ground waters, their uptake pathways, and potential remedies. The other three sub-projects were; the characterization of antibiotic resistance in geothermal springs of Sri Lanka, the determination of the variability of the microcystin-producing gene cluster in selected cyanobacteria using molecular characterization, and conducting balloon flights over Sri Lanka to detect possible ingress of cometary microorganisms & particulate matter.

Results/Key findings:
The RNA-sequencing analysis identified differentially expressed host genes, that could potentially be biomarkers for DR- TB identification. We optimized a low-cost polyethene glycol (PEG)-precipitation-based method to successfully isolate extracellular vehicles (EVs) from latent TB patient serum. Further, the Dynamic Light Scattering (DLS) technique could differentiate active TB from latent TB, household contacts, and healthy individuals using EVs. We identified a panel of genes (NGAL, ANXA3 and OLFM4) as potential diagnostic biomarkers for diabetic nephropathy (DN) in CKD patients in Sri Lanka.

From L to R: Ms. W.M.S.N. Bandara, Ms. K.D.H.S.M.S. De Silva, Ms. S. Saseevan, Prof. D.N. Magana-Arachchi, Ms. H.M.S.A.T. Gunathilaka, Ms. R.G.N.D. Rambodagedara, Ms. W.R.U.A. Bandara

Nutritional Biochemistry Research Programme

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Research Project Introduction:
Malnutrition among children and diet-related non-communicable diseases are two main health issues in Sri Lanka at present. In addition to the disparity in income level, poor dietary habits and poor nutrition literacy among the population may have caused these dietary disorders. The nutritional Biochemistry unit at NIFS tries to explore the potential of underutilized fruits and vegetables to improve nutritional status and also tries to identify some other hidden causes for these nutritional disorders.

Research Activities:
With the aim of promoting locally available food sources to combat the double burden of malnutrition among people in Sri Lanka: A comprehensive study investigated the nutritional and biochemical properties of raw and processed *Artocarpus nobilis* (Badi del/Wal del) seeds *in vivo* and *in vitro*, and another comparative study was conducted on raw and processed underutilized minor millets in Sri Lanka and their suitability as a wheat flour substitute. Another study focused on finding the association between early childhood caries (ECC) with nutritional status, oral health status, and oral health-related quality of life in a sample of Sri Lankan children aged 4-5 years. Furthermore, another collaborative study investigated the involvement of genetic makeup in a multitude of dietary phenotypes, such as energy and macronutrient intakes, dietary patterns, and specific food group intakes, using the Sri Lankan twin cohort developed in 1996.

Results/Key findings:

- *Artocarpus nobilis* seeds are rich in functional and nutritional compounds compared to some commonly consumed nuts; almond, pistachio, and cashew.
- Among the 545 children studied,77.6% had evidence of early childhood caries, 8.4% of them were stunted, and 17.8 were underweight.

From L to R: Ms. H.A.C. Dias, Ms. R.H.W.M.I.C. Ratnayake, Dr. N.L.B.R. Liyanage, Ms. M.A. Wickramasinghe, Ms. H.R.P. Prasadini

Plant Stress Biology & Molecular Genetics Research Programme

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Research Project Introduction:
Nitrogen(N) is the element that plants require in the highest quantity. Approximately 50-70% of N applied to the soil is lost, due to different reasons. Also, extreme use and incomplete capture of N fertilizers result in major environmental issues. Nanotechnology is identified as a novel path for increasing nutrient use efficiency in cropping systems. Therefore, our overall objective of this project is to develop hybrid nano nitrogen fertilizer having the highest possible N use efficiency.

Research Activities:
We have developed a slow-release nano nitrogen fertilizer using montmorillonite clay (MMT) as career materials. This was accomplished by synthesizing two distinct fertilizer systems and combining them in the appropriate proportion to produce the desired fertilizer system. Initially, a nano ammonium fertilizer system was developed by intercalating ammonium with MMT. In addition, a nano nitrate fertilizer system was developed using MMT and surface modification and intercalation techniques. Both synthesized fertilizers were analyzed using cutting-edge technology such as a Scanning electron microscope, X-ray Photoelectron Spectroscopy and Brunauer-Emmett-Teller to confirm the nutrient loading capacity. The optimal ratios of both materials were determined based on typical water release studies. The finished fertilizer system was then tested in a glasshouse with the selected rice variety Bg 251.

Results/Key findings:
Approximately 50-70% of N added to the soil is lost in today's farming practices, mostly owing to surface run-off, leaching of nitrates, volatilization of ammonia, etc. Excessive nitrogen fertilizer use produces excessive N_2O emissions while increasing production costs due to lower N-use efficiency. The new hybrid nano-nitrogen fertilizer will provide significant economic and environmental benefits to the industry.

From L to R: Ms. M. Perera, Prof. S. Senaweera

Plant Taxonomy & Conservation Research Programme

Prof. D.S.A. Wijesundara ***Research Professor***
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Research Project Introduction:
The Plant Taxonomy and Conservation project is involved in: a) Taxonomic and Biogeographical Studies of the flora of Sri Lanka, b) Restoration Ecology, c) Sustainable Use of Sri Lankan Plants, d) Factors affecting the conservation of the flora, of Sri Lanka including Invasive Alien Species, and e) Mycological studies. Managing the NIFS-Sam Popham Arboretum, considered as the best site in Sri Lanka for Assisted Natural Regeneration is also an important responsibility of this project.

Research Activities:
A guidebook and a brochure for NIFS-Popham Arboretum were produced with UNDP funding. Systematic studies on *Strobilanthes and Syzygium* were continued. Molecular taxonomic studies on *Syzygium* species were continued, and the collected specimens were prepared as voucher specimens and deposited in the National Herbarium at Peradeniya. Three new species of flowering plants, *Strobilanthes glandulata*, *Syzygium aureum* and *Syzygium hemachandrae* were described. A research paper was published on the research done in collaboration with the Biotechnology Center of the university of Peradeniya on Sri Lankan Cinnamon. Mycological studies in *Eucalyptus* plantations were carried out and a study on mushrooms in Kandy District was started. Research activities on mycological studies on *Eucalyptus* plantations and mushrooms were presented at a national symposium. Altogether, 12 papers, 2 books, 4 abstracts and one magazine article were published. Two workshops were conducted on Plant Identification and Ecotourism, and 8 public talks on conservation were conducted.

Results/Key findings:
Three new flowering plant species, *Srobilanthes glandulata*, *Syzygium aureum* and *Syzygium hemachandrae*, were described, and one flowering plant species *Thottea duchartrei* was recorded for the first time in Sri Lanka.


Strobilanthes glandulata


Syzygium aureum


Syzygium hemachandrae


Thottea duchartrei


From L to R: Ms. T. Kulangana, Mr. H.D. Jayasinghe,Mr. C. Lekamge, Prof. S. Wijesundara, Mr. R. Brahamanage, Mr. R. Hapukotuwa, Ms. S. Perera, Ms. B. Premarathne

Primate Biology Research Programme

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Research Project Introduction:
Research involves observations of monkeys inhabiting the natural forest at Polonnaruwa. We aim to: (1) establish new knowledge concerning primate evolution; (2) provide a scientific basis for nature conservation; and (3) disseminate new knowledge through publications and documentary films. We test hypotheses of social evolution by continuously monitoring socio-ecological differences among three sympatric primate species. For example, in 2022, long-term lactation records revealed adaptive flexibility in maternal investment among wild monkeys under different environments.

Research Activities:
Demography, behaviour and range use among four primate species at Polonnaruwa: Toque macaques *Macaca sinica*, gray langurs *Semnopithecus priam*, and purple-faced langurs S. *vetulus*, and the nocturnal loris *Loris lydekkerianus*. Regular monthly census of many groups of primates from these four species is the basis for population ecology studies, comparisons among species and social groups within each species. Field observations and census were carried out in 2022 as a continuation of earlier work. The results of these studies are integrated with other data and published as appropriate under different titles and documentary films.
Lactation, weaning and reproduction in wild macaques. Long-term records (from 800 females and 38 social groups) were analyzed and submitted for publication, requiring peer review revisions.

Documentary film production. We completed our field support for filming a new production sponsored by the BBC (Natural World, UK). The film will air in 2024.

Results/Key findings:
Lactation duration and weaning age in primates are notoriously difficult to measure, especially under field conditions, but these variables are critical for testing hypotheses of maternal investment and primate evolution. Numerous studies of captive primates point to a weaning age for infants at 6 to 7 months. In contrast to captive monkeys that are provided with food, wild toque macaques depend on an uncertain and limited natural food supply. Mothers promote offspring survival by nursing their infants for 12 to 20 months. At Polonnaruwa, we had earlier captured and released macaque females and tested their mammary tissue for the presence or absence of milk.

From L to R: Mr. C. Pathirathne, Prof. W.P.J. Dittus, Mr. S. Rathnayaka

Rhizobium Project

Prof. Gamini Seneviratne ***Senior Research Professor***
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Research Project Introduction:

The Rhizobium Inoculant Research & Production Facility (RIRPF) was affiliated with NIFS and commenced in January 2012 under the collaborative and consultative division (CCD) of the NIFS. In 2018, RIRPF was absorbed into the Microbial Biotechnology Unit (MBU) of the NIFS. The project's primary mission is to produce rhizobial inoculants and familiarize them with local legume cultivations to minimize the chemical nitrogen fertilizer (urea) application.

Research Activities:

A study was conducted to evaluate the effect of Biofilm biofertilizer (BFBF) as an ameliorant to rhizobium-legume symbiosis using bean (*Phaseolus vulgaris* L.) as the test plant in a farmer's field at Padiyapelella, Nuwaraeliya, during Yala season 2022. There were five treatments: chemical fertilizer recommendations of the Department of Agriculture (DOA) for bean (CF) and Rhizobium biofertilizer (Rh), BFBF, combined application of Rh and BFBF (Rh + BFBF), and a control with no fertilizers. Treatments were employed in 12 m^2 plots with a randomized complete block design. Data on shoot and root fresh and dry weights, number and weight of nodules/plant at the flowering stage, and the number of pods/plant, the weight of pods/plant, and soil pH and moisture at both stages were collected.

Results/Key findings:

Significantly higher shoot dry weight, root dry weight, nodule number/plant and nodule dry weight/plant were observed in the Rh + BFBF treatment ($p<0.05$). There were no significant differences between Rh and Rh + BFBF treatments regarding the root and nodule dry weight. However, a significantly higher number of pods/plant (257) and weight of pods/plant (2145 g) at two harvesting cycles were observed in the Rh + BFBF treatment, showing the potential of Rh + BFBF, which can be popularized in future The commercial program distributed Rh for 4,000 ac of legume cultivations.

From L to R: Mr. E.M.H.G.S. Ekanayake, Prof. G. Senevirathna, Mr. R.K.G.K. Kumara, Ms. D. Aberathna, Mr. A.H.M.A.K. Tennakoon

Condensed Matter Physics & Solid-State Chemistry Research Programme

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Research Project Introduction:

The condensed Matter Physics and Solid-State Chemistry research project at NIFS currently focuses on understanding the fundamental physicochemical processes in scientifically intriguing and technologically important novel materials for novel, low-cost solar cells, and other applications. The primary focus during 2022 has been on developing novel materials for efficiency enhancement in dye-sensitized and quantum dot-sensitized solar cells and polymer nanofiber membrane-based water filters for heavy metal removal from drinking water.

Research Activities:

Under the first project, Poly (vinylidene fluoride-co-hexafluoropropylene) (PVdF-HFP) electrospun polymer nanofiber-based quasi-solid or gel electrolytes were successfully fabricated by incorporating a liquid electrolyte within the nanofiber membrane matrix. The best solar cell fabricated with the optimized nanofiber membrane gel electrolyte showed an energy conversion efficiency of 6.79% but had better dimensional stability due to the "gel" nature of the electrolyte. The efficiency of the conventional liquid electrolyte-based cell was 7.28% under the same illumination conditions.

Under the second project, we successfully synthesized polymer nanofiber membranes using cellulose acetate polymer. We functionalized them with suitable heavy metal adsorbing materials to remove heavy metals (such as Cd and As) from drinking water. Studies on the morphological characterization of nanofiber membranes and their ability to adsorb heavy metals are continuing.

Results/Key findings:

Our research findings show that the optimized, polymer nanofiber-based gel electrolytes can be used successfully to replace the liquid electrolyte in dye solar cells without much loss of efficiency but minimizing most of the drawbacks associated with liquid electrolytes.

Nanofiber membranes prepared by electrospun cellulose acetate polymer and functionalized with suitable materials are capable of adsorbing heavy metals such as cadmium and arsenic from drinking water.

From L to R: Ms.W.I. Sandamali, Ms. G.K.G.A.K. Karunarathne, Mr. K. Umair, Prof. M.A.K.L. Dissanayake, Prof. G.K.R. Senadeera, Ms. J.M.K.W. Kumari, Ms. J.L. Subasinghe, Ms. M.S.H. Hettiarachchi

Energy & Advanced Material Chemistry Research Programme

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Research Project Introduction:
The group researches the chemistry and physics of new materials for converting solar energy into chemical and electrical energies. The main research topics of the group are: photovoltaic technology, mainly dye-sensitized, Q-dot and polymer solar cells to generate electricity from solar radiation; constructing artificial chemical devices mimicking photosynthesis to produce various forms of environmentally clean fuels such as green hydrogen via water splitting and convert atmospheric carbon dioxide into fuels.

Research Activities:
Green hydrogen production via water splitting reaction: Various photocathodes and photoanodes were fabricated for the photoelectrochemical water splitting investigation. By anodizing the porous titanium mesh, a photoanode containing different titanium/titanium dioxide Nanorod/Nanotube (Ti/TiO_2 NR/NT) array schottky junction, was fabricated, and light harvesting Sb_2S_3 nanostructures were grown on Ti/TiO_2 NR/NT junction, and photoelectrochemical performances were tested. Similarly, a Ti/TiO_2 NR/NT array schottky junction with a light-harvesting CuO photocathode is tested for water splitting. **Photovoltaic energy generation**: One of the major factors limiting the performance of thin film solar cells of $FTO/TiO_2/Sb_2S_3$/P3HT/Ag configuration is the material properties of Sb_2S_3. The optical and electrical properties of Sb_2S_3 thin films were investigated in this study to improve the performance of solar cells. Electrochemical analyses were performed to understand better the relationship between solar cell performance and structural variation in Sb_2S_3 materials.

Results/Key findings:
Green hydrogen production by water splitting reaction: The water splitting property of photoanodes Ti/TiO_2 NR/NT array schottky junction with Sb_2S_3 was successfully demonstrated. The investigation of the solar to hydrogen conversion efficiency (STH) limiting factors and further improvement of STH are ongoing. **Photovoltaic energy generation**: Generation of photovoltaic energy: thin film solar cells in the $FTO/TiO_2/Sb_2S_3$/P3HT/Ag configuration achieved a 4.5% efficiency. The efficiency of Sb_2S_3 thin films is highly dependent on their electrical properties but less on their optical properties. A 100 nm thin Sb_2S_3 film was discovered to be the optimum thickness, and a thicker Sb_2S_3 resulted in lower efficiency due to the light parasite effect.

From L to R: Ms. M. Sarathchandra, Ms. D. Aluthpatabandi, Mr. S.A.D.A.V. Sumithraarachchi, Mr. A.G.C.N. Wijerathna, Prof. J. Bandara, Mr. R.P.P.D. Rajakaruna, Mr. D.C. Rajapakse, Ms. J.M.R.V. Jayasundara

Material Processing & Device Fabrication Research Programme

Prof. G. R. A. Kumara ***Research Professor***
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Research Project Introduction:
The project involves experimentation and basic studies in material processing and device fabrication. This work covers the following basic and applied aspects: Add value to readily available Sri Lankan Vein Graphite. Use such value-added products as counter electrodes in low-cost dye-sensitized solar cells. Coconut shells convert to highly porous and highly conducting activated charcoal for utilization as supercapacitors electrodes. Additionally, the programme conducts research related to thin-film perovskite solar cells.

Research Activities:
Energy storage systems are essential to decoupling fossil resource use from energy supply and reducing greenhouse gas emissions. It must be cost-effective and built with renewable materials. Recently developed electrodes using activated carbon (AC) derived from coconut shells have a promising application as energy storage electrodes. The new AC has been developed by thermal activation using steam to obtain highly porous electrode material with excellent energy storage capabilities. Organic solvents are commonly used as commercial electrolytes in supercapacitors but have several drawbacks. A novel and low-cost ionic liquid, triethylammoniumthiocyanate, was synthesized and used as the electrolyte in a supercapacitor.
Perovskite solar cells (PSCs) have reached a record high conversion efficiency of 25.7%, and the materials used to fabricate them invoke costly hole-transporting materials and expensive gold back contacts. Here we have developed a low-cost PSC using activated carbon and the back contact with expanded graphite. We drastically reduced the overall cell fabrication cost.

Results/Key findings:
Using coconut shells, we developed a method to fabricate high-performance activated carbon electrodes for energy storage supercapacitors. A novel and low-cost ionic liquid based on triethylammonium cation and thiocyanate anion were synthesized and used as electrolytes in low-cost supercapacitors. We have developed a low-cost perovskite solar cell using activated carbon and the back contact with expanded graphite.

From L to R: Mr. P.M.L. Kumarage, Ms. M.I.U. Weerasinghe, Prof. G.R.A. Kumara, Mr. A.D.T. Madagedara, Mr. H.W. Gardiarachchi, Mr. R.M.K.S. Bandara

Nanotechnology & Advanced Materials Research Programme

Dr. Athula Wijayasinghe ***Senior Research Fellow***
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Research Project Introduction:
Nanotechnology and Advanced Materials fields significantly contribute to present technological advancements mainly by introducing novel materials derived from minerals. Sri Lanka possesses useful minerals, but such target-oriented value addition is yet to be introduced. These factors inherent to our country are seriously considered in performing our fundamental/advanced but target-oriented scientific investigations. The National Centre for Advanced Battery Research (NCABR), a dedicated facility for upgrading Sri Lankan minerals and battery-related research, is operated under this project.

Research Activities:
Value addition to Sri Lankan minerals and related materials for advanced/nano-technological/high-tech industrial applications: The study of purification and modification of Sri Lankan vein quartz followed with further enhancement of ion intercalation aiming for high-performance rechargeable battery types is our recently started value addition effort. In addition, research on deriving nano-materials, entities and composites out of our upgraded local minerals (graphite, clay types, quartz) is successfully going on.
Development of low-cost and performance-enhanced advanced materials for energy conversion (using low-cost/nanomaterial synthesis techniques): Study of mechanism and effect of dopants in advanced transition metal semiconductors (TMO) and their further development with enhanced ion intercalation are performed to develop performance-enhanced advanced/nanomaterials for batteries.
Development of Sri Lankan graphite for rechargeable battery applications: The performance of novel batteries fabricated with our invented battery-grade minerals and developed/nanostructured TMOs are investigated for different rechargeable battery types of Li-ion, Na-ion, etc.

Results/Key findings:
A patent application was filed based on our invented ‘’Method of Structural modification of vein graphite through varying interlayer spacing by thermal annealing for the anode electrode of the sodium ion rechargeable battery’’ (Sri Lankan patent application number: 22136). Our developed novel combined alkali roasting - acid leaching purification technique revealed its capability to purify vein graphite to a high purity of 99.9 %. A Li-ion rechargeable battery was successfully fabricated and tested with Sri Lankan vein quartz as anode material for the first time. It showed a promising performance with 90 mA h/g initial specific capacity with 99 % efficiency.

From L to R: Mr. W.T.R.S. Fernando Ms. H.M.H.D.K. Naranpanawa, Dr. H.W.M.A.C. Wijayasinghe, Mr. I.B. Samarakoon, Mr. W.G. Jayasekara Banda

Natural Products Research Programme

Prof. Lalith Jayasinghe ***Senior Research Professor***
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Research Project Introduction:
Natural Products are compounds produced by plants, fungi, marine organisms etc. These compounds can be used to improve the quality of human life. The overall objective of the Natural Products Project of the NIFS is the identification of bioactive extracts and compounds from natural sources as potential sources for the control of human and plant diseases. Research activities have been focused on the chemistry and bioactivity of secondary metabolites from plants, fungi including endophytic fungi and edible fruits of Sri Lanka.

Research Activities:
Research activities of the Natural Products Project of the NIFS is mainly on the following areas.

1. Investigating extracts from plant sources for use in agriculture and human health'
2. Investigation of epiphytic and endophytic fungal extracts for use in agriculture and human health.
3. LC-MS profiling of bioactive extracts for phenolic compounds.
4. Cause and control of postharvest fungal diseases and disorders of edible and export-oriented fruits.

Results/Key findings:

- The endophytic fungus from *Centella asiatica*: Four compounds austdiol (**1**), 4-(hydroxymethyl)-3-methoxy-5-methylcyclopent-2-enone (**2**), eugentine (**3**) and 6-methoxyethyl eugenin (**4**) were isolated. Compounds **1** and **2** showed phytotoxicity with leaf puncture assay, and only the compound 1 showed strong phytotoxicity in seed germination inhibition.
- The endophytic fungus from *Curcuma longa*: Two compounds fusaric acid (**5**) and 9, 10-dehydrofusaric acid (**6**), were isolated. Compounds **5** and **6** showed strong acetylcholinesterase enzyme inhibitory activity, while **6** showed a strong potential to inhibit the α-amylase enzyme.
- *Piper longum* L.: Extracts resulted in three compounds guineesine (**7**), pipatalin (**8**) and 4',7-dimethylapigenin (**9**). All compounds showed brine shrimp lethality and strong antioxidant activity. Compounds **7** and **8** showed phytotoxicity and α-glucosidase inhibitory activities.

From L to R: Ms. U. Siriwardhane, Ms. A.N. Gunathilake, Ms. W.A.D.S. Wijesinghe, Prof. N.K.B. Adikaram, Prof. L. Jayasinghe, Mr. D.S. Jayaweera, Ms. K. Samarakoon, Ms. J.C. Kalinga, Mr. Ms. A.M.N.A. Atapattu

Computer Science, Mathematics and Statistics Research Programme

Prof. S. R. Kodituwakku ***Professor***
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Research Project Introduction:
The main aim of the Computer Science, Mathematics, and Statistics Programme is to conduct research to make scientific advances in the discipline while generating advanced knowledge needed for national and international development. Our research also focusses on various areas, including Software Engineering, Artificial Intelligence, Image Processing, Distributed Systems, Applied Mathematics, Mathematical Modelling, Data Analytics, and Data Science. This programme also develops applications that can be adopted in biology, chemistry, engineering, geosciences, physics, and other disciplines for research and educational purposes.

Research Activities:
Development of a conceptual framework to make the execution of well-defined research programme targeting the commercial agriculture sector. A strategic change towards keeping a country on track to achieving the second sustainable development goal (SDG), i.e., 'zero hunger by 2030', could be considered to analyse the drawbacks of the current research environment and to find solutions through digital interventions. The main objective is to propose a conceptual model to connect and practice research beyond physical presence through digital transformations.

Results/Key findings:
The digitally endorsed performance management framework and relevant policy measures are identified to build an agile architecture that would not incur technical debt in a newly formed cultural position.

From L to R: Mr. A.E. Gunasekaran, Prof. S.R. Kodituwakku, Mr. K.G.S.N. Samaraweera, Ms. H.C. Hettiarachchi

Earth Resources and Renewable Energy (ER & RE) Research Programme

Prof. N. Deepal Subasinghe ***Associate Research Professor***
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Research Project Introduction:

ER & RE programme focuses on developing and improving renewable energy sources, mainly utilising locally available resources. Geothermal resources and certain mineral resources are heavily underutilised in Sri Lanka and, yet, have a great potential to contribute to the development of Sri Lanka. Sub-projects include geothermal energy & radon mapping, mineralogy & petrology of SL rocksas well as a pioneering project on thermoelectricity, that focuses on improving efficiency & developing new materials for power generation.

Research Activities:

Conducted geophysical, geochemical, and geological studies on geothermal resources of Sri Lanka to develop them for power generation. Geophysical techniques such as resistivity, magnetic and electromagnetic methods are mainly used to study the subsurface structures.

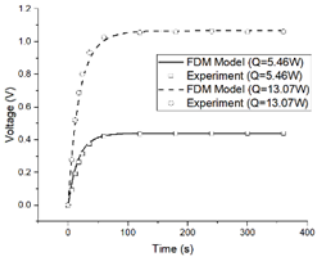
Study of petrology and mineralogy of Sri Lankan rocks as well as an extra-terrestrial sample to understand their origin, and to generate advanced knowledge.

Mapping radon and its nuclides to establish natural radiation levels of the country and observe any potentially hazardous regions and to locate radioactive mineral deposits.

Thermoelectric (TE) materials that can directly convert heat into electricity, are developed using locally available raw materials such as Sri Lankan graphite and its derivatives. In addition, theoretical modelling of behaviour of semiconductors used in thermoelectric devices were studied with a view to understand and improve them in an advance way. The theoretical results were compared with experimental results and models were developed to explain their behaviour.

Results/Key findings:

1. Evaluating the Geothermal energy potential of Sri Lanka.
2. Contributing to the knowledge on the origin of Sri Lankan rocks.
3. Developing thermoelectric generators using local raw materials, and a prototype of a thermoelectric mobile charger using a small candle.
4. Successfully modelled the behaviour of a junction between different semiconductor/conductor materials used in thermoelectric devices, contributing to the knowledge.



Comparison of theoretical & experimental results of TE output

From L to R: Ms. D.R.T.L. Harischandra, Ms. V. Devaraj, Mr. R.A. Ratnayake, Prof. N.D. Subasinghe Mr. U.G.A.M.P. Abewardana, Ms. M. Thilakarathna, Ms. M. Abeysinghe

Environmental Research Science Programme: Water Quality Research

Prof. Rohan Weerasooriya ***Research Professor***
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Research Project Introduction:

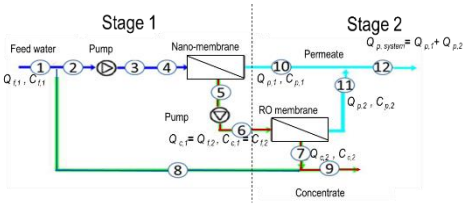
Over three million people, mostly in the dry zone region (Sri Lanka), face water stress due to high salinity. Although pressure-driven membrane desalination is globally successful, they show limited success in Sri Lanka due to inappropriate use. These methods are also energy intensive, demanding a paradigm shift solution in water desalination. Misconceptions in the community aggravate water stress. Current drinking water screening methods are ambiguous due to fundamental knowledge gaps in solutes pair chemistry.

Research Activities:

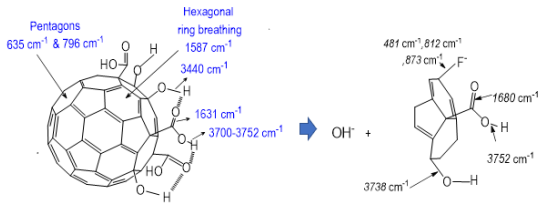
Innovative site-specific pressure-driven membrane topologies were proposed to attain pseudo-tunability to receive desired water quality. The designing of graphite-derived tunable membranes is in progress. To minimize community participation in treatment plant operation and maintenance, a smartphone-controlled device was fabricated for remote automation (laboratory scale). The evolution of the groundwater salinity was elucidated by geochemical modeling and ascribed to silicate rock's incongruent dissolution. Molecular dynamics simulations were used in designing graphite-based membranes. Ab initio molecular modeling coupled with ex situ spectroscopic methods was used to define atomic configurations of solutes in natural water. Awareness programs were conducted for different age groups, e.g., youths, adults, and professionals, to minimize public misconceptions. Proposals were also made for closing abandoned wells to secure aquifer safety. The NIFS Water Researchers joined hands with the Ministry of Water Supply, state universities, and international laboratories to achieve results for the nation's benefit.

Results/Key findings:

NF/RO topology for water desalination



Carbon spheres for water fluoride and turbidity concurrent removal



From L to R: Mr. S.M.D.M.C. Senarathne, Mr. C.L. Jayaweera, Ms. S.P. Hemachandra, Ms. P.M.C.J. Bandara, Prof. R. Weerasooriya, Ms. S.S.S. Ariyathilaka, Ms. A.M.M.R.N.L. Mudannayake, Ms. A.E. Amarasekera, Mr. I.D.U.S. Piyathilake

Environmental Research Science Programme:

Material Development and Pollutant Remediation

Dr. Lakmal Jayarathna ***Research Fellow***
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Research Project Introduction:

The materials development, fabrication and pollutant remediation project mainly focusses on an area of fundamental and applied science to fill the gap between traditional and modern material technology. Environmental pollution is one of the major results of modern development. Monitoring and understanding the basic and fundamental mechanisms of pollutant materials in nature are much more important. Nanomaterials functioning as adsorbents and catalysts and their composites are used for the detection and removal of gases, contaminated chemicals, organic pollutants, and biological substances.

Research Activities:

Zeolites have attracted interest in developing gas-sensing materials owing to their unique physical and chemical properties. Mordenite, LTA, and ZSM-5 zeolites were modified as sensing materials by confining morphologically controlled ZnO nanostructures (nanorods, nanoflowers, nanofibers, etc.) using a post-synthetic hydrothermal encapsulation approach. Zeolite Y was synthesized by hydrothermal and microwave methods, and the synthesis conditions and chemical ratios were fine-tuned through several synthesis trials. Materials were characterized by FTIR, Raman, PXRD and SEM. Besides that, Zeolite-CuY was synthesized from purified Meetiyagoda Kaolin. The catalytic activity of the material was tested with phenol vapours, and resultant degradation products were analyzed by GC/MS. Slow-release nano nitrogen fertilizer was synthesized by intercalating nitrate and ammonia in to the montmorillonite clay. Also, the characterizations were carried out using modern instrumentations. Then this fertilizer was applied to the rice plant under the green house conditions. Statistically analyzed the obtained phenotypic and harvest data.

Results/Key findings:

Proper material synthesis was justified with scanning electron microscope data. significantly higher (double) harvest was obtained with this nano nitrogen fertilizer with compared to urea. The hydrothermally synthesized Zeolite-CuY catalyst exhibits excellent characterization results, including high crystallinity and crystal structures.

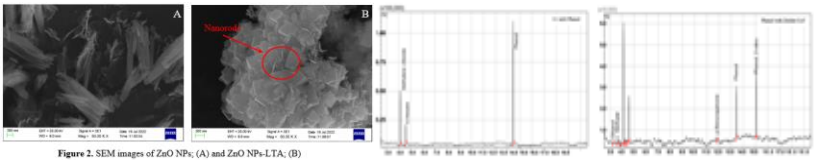

Figure 2. SEM images of ZnO NPs; (A) and ZnO NPs-LTA; (B)

From L to R: Ms. M.D.R. Perera, Dr. I.P.L. Jayarathna, Ms. R.A.L.R. Amarasena

Plant & Environmental Sciences Research Programme

Prof. M.C.M. Iqbal ***Associate research professor***
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Research Project Introduction:

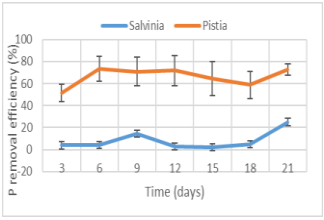
Phosphorus is a major essential nutrient to support plant growth and development. The phosphorus availability in soils for crop production is one of the determinants of global food security. With an increasing demand for phosphorus, the reserves are continuously depleting due to the slow recovery rate of phosphorus reserves. Therefore, this study aims to recover the phosphorus from wastewater using phytoremediation, bring it back to the soil, and ensure phosphorus cycling.

Research Activities:

Cattle farm effluent was collected from the Mawelawaththa farm, Faculty of Agriculture, University of Peradeniya. Salvinia and Pistia water plants were collected from open tanks in the Kandy district and acclimatized in tap water for a week. The initial nutrient composition of farm effluent was determined. Plants collected from open tanks were cleaned with running tap water to remove surface dirt and senescing plant parts. The plants were blotted with tissue papers and placed in basins with tap water to propagate. The plants were weighed and introduced to the farm effluent-containing trays to determine their phosphorous removal. Dried plants were ground and converted to powder using a blender to prepare P bio-fertilizer. The fertilizers were bio-assayed with mung beans. Phosphate removal efficiency and uptake (mg g-1 fresh weight) of Salvinia and Pistia, were determined 21 days after introducing them to the farm effluent.

Results/Key findings:

The data revealed that cattle farm effluent is a good source of nutrients and phosphorus. *P. stratiotes* had significantly ($P<0.05$) high phosphorus removal efficiency and phosphorus uptake compared to *S. molesta*.



From L to R: Mr. R. Hapukotuwa, Ms. T. Kulangana, Prof. M.C.M. Iqbal, Ms. S. Perera

VISITING SCIENTISTS

Prof. Meththika Vithanage ***https://orcid.org/ 0000-0003-2923-4065***

Enrichment mechanisms of CKDu-risk factors in groundwater, their uptake pathways & potential remedies:

The study focuses on analyzing Hofmesiter ions and cyanotoxins as risk factors in subsurface groundwater and the plant materials in CKDu endemic area. The study will also carry out to investigate the uptake enrichment of cyanotoxins into plants and its correlation with the fluoride and ionicity. Further, we are developing a material which has the capacity to remove the risk factors from drinking water. We have collected more than 130 water, soil and plant samples from CKDu endemic and non-endemic areas and analyzed for the risk factors. We were able to publish 3 SCI journal articles in 2022 from this study.

Prof. G. K. Rohan Senadeera ***https://orcid.org/0000-0002-9202-90008***

Condensed Matter Physics and Solid-State Chemistry

Efficient triple-layer photoanode incorporated with N-doped TiO_2 for CdS quantum dot-sensitized solar cells (QDSSCs): Triple-layer photoanode, consisting of TiO_2 P90, TiO_2 P25 and N-doped TiO_2 was developed for QDSSCs and 29.81 % efficiency enhancement is achieved. Material characterization was done by HTEM, XRD, UV-Visible, and Mott-Schottky techniques.

Morphological and structural study on low-cost SnO_2 counter electrode for QDSSCs Fabrication of efficient CdS-sensitized solar cells with a novel counter electrode based on a thin film of SnO_2 was revealed and 43% efficiency enhancement was achieved. Material characterization was done by SEM, HRTEM, XRD, and UV-visible spectroscopic techniques.

Prof. N. K. B. Adikaram ***https://orcid.org/0000-0001-8570-1241***

Natural Products - Study of some postharvest disorders of guava, mango & avocado & their management

Postharvest disorders arise from metabolic faults of fruits, pre-harvest or environmental factors. Disorders differ from diseases as another organism is associated with diseases. Considerable fruit losses result from disorders, especially pulp disorders, preventing fruits from consumption or marketing. Present understanding on disorders is inadequate, especially for developing proper management strategies.

Guava, papaya, and mango fruits, showing symptoms of pitting, and avocados with husk-scalding were collected and studied. The symptoms were described and photographed. The cause/s, mode of development, and the damage caused were established. Attempts were made to develop management strategies using the overcome of the study and reduce postharvest fruit losses.

Prof. S.A. Kulasooriya ***https://orcid.org/0000-0002-3309-1311***

Rhizobium Project

The project's aim is to produce rhizobial inoculants and familiarize them with local legume cultivations to minimize urea application. In 2022, the study evaluated the effect of Biofilm biofertilizer (BFBF) as an ameliorant to rhizobium-legume symbiosis using a bean (*Phaseolus vulgaris* L.) as the test plant in a farmer's field at Padiyapelella, Nuwaraeliya. Five treatments were tested: chemical fertilizer recommendations of the Department of Agriculture (DOA) for bean (CF) and Rhizobium biofertilizer (Rh), BFBF, combined application of Rh and BFBF (Rh + BFBF), and a control with no fertilizers. Data on different growth stages, alongside soil pH and moisture, were recorded.

Dr. Gayan Bowatte ***https://orcid.org/0000-0002-9577-9752***

Air pollution modelling & Health Effects Estimate

According to the World Health Organization (WHO), approximately 7 million people die annually from air pollution exposure. Evaluation of air pollutants in cities along the roads provides the true levels of emissions generated by vehicles as well as the exposure levels to commuters, pedestrians, and individuals who live or work close to these roads. To the best of our knowledge, there has been no traffic-related mobile air pollution monitoring study published in Sri Lanka to date. This study aimed to monitor and evaluate traffic-related air pollution on the roads of Kandy city, Sri Lanka, before and during a new traffic plan.

ADJUNCT RESEARCH PROFESSORS

LIFETIME RESEARCH PROFESSORS

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Prof. Tennakone K.
Adjunct professor of Physics at Georgia State University
https://orcid.org/0000-0003-2613-9214

OTHER ADJUNCT RESEARCH PROFESSORS

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   Director and Professor of Bioorganic and Natural Product Chemistry at the International Center for Chemical and Biological Sciences (H. E. J. Research Institute of Chemistry and Dr. Panjwani Center for Molecular Medicine and Drug Research), Pakistan

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   Professor in Organic Chemistry at the Università degli Studi di Milano, Italy

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   Senior Staff Grade Professor in Electronic Materials and Devices at Sheffield Hallam University, UK

4. **Prof. Fujimoto Y.** ***(https://orcid.org/0000-0003-2667-8007)***
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5. **Prof. Hirotsu N.** ***(https://orcid.org/0000-0002-9893-7111)***
   Professor at Toyo University, Japan

6. **Prof. Ismail N. H**. ***(https://Orcid.org/0000-0002-2374-4630)***
   Professor in Chemistry at University Teknologi Mara (UiTM), Malaysia

7. **Prof. Nammi S.** ***(https://orcid.org/0000-0002-4735-2789)***
   Senior Lecturer in Pharmacology and Academic Course Advisor (BMedSc) at the School of Science and Health, Western Sydney University, Australia

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   Professor of Jacobs University Bremen, Germany

9. **Prof. Wei Y.** ***(https://orcid.org/0000-0003-0900-7412)***
   Professor, Director of Laboratory of Water Pollution Control, Research Center for Eco-Environmental Sciences (RCEES), Chinese Academy of Sciences (CAS)

10. **Prof. Zhenbo Xu** ***(https://orcid.org/0000-0003-2865-2441)***
    Professor Zhenbo Xu, attached to the School of Food Science and Engineering, South China University of Technology, China

11. **Prof. Xing CHEN** ***(https://orcid.org/0000-0002-8730-8029)***
    Professor of Hefei University of Technology, China

12. **Prof. Senani Karunaratne** ***(https://orcid.org/0000-0002-9278-7941)***
    Senior Research Scientist, CSIRO Agriculture & Food, Australia

13. **Prof. Pushpakanthi Wijekoon** ***(https://orcid.org/0000-0003-4242-1017)***
    Senior Professor, Department of Statistics and Computer Science, University of Peradeniya

14. **Prof. Samantha Karunaratne** (***https://orcid.org/0000-0001-6626-4242)***
    Professor at the Center for Yunnan Plateau Biological Resources Protection and Utilization, Qujing Normal University, China

SECTION 2 – RESEARCH PERFORMANCE IN YEAR 2022

PUBLICATIONS IN JOURNALS

BIOLOGICAL SCIENCES RESEARCH DIVISION

Evolution, Ecology and Biodiversity Research Programme

1. Ranasinghe, U.G.S.L., Eberle, J., Thormann, J., Bohacz, C., **Benjamin, S.P.,** and Ahrens, D. (2022). Multiple species delimitation approaches with COI barcodes poorly fit each other and morphospecies – An integrative taxonomy case of Sri Lankan Sericini chafers (Coleoptera: Scarabaeidae). *Ecology and Evolution*, 12, p.1-15. [SJR Quartile: Q1]
   https://www.wiley.com/en-us/Ecology+and+Evolution-p-9780JRNL74180

2. Tharmarajan, M., and **Benjamin, S.P.** (2022). Origin and diversification of free-living stick spiders of Sri Lanka including the description of four new species of *Rhomphaea* L. Koch, 1872 and two new species of *Neospintharus* Exline, 1950. *PLoS ONE*, 17(9), p.1932-6203. [SJR Quartile: Q1]
   http://www.doi.org/10.1371/journal.pone.0273105

3. Satkunanathan, A., and **Benjamin, S.P.** (2022). Phylogenetic placement of *Carrhotus* Thorell, 1891 with three new species from Sri Lanka (Araneae: Salticidae). *European Journal of Taxonomy*, 817, p.78-110. [SJR Quartile: Q2]
   http://www.doi.org/10.5852/ejt.2022.817.1765

4. Ranasinghe, U.G.S.L., Eberle, J., Athukorala, N., **Benjamin, S.P.,** and Ahrens, D. (2022). New species of Sericini from Sri Lanka (Coleoptera, Scarabaeidae). Part II. *European Journal of Taxonomy*, 821, p.57-101. [SJR Quartile: Q2]
   http://www.doi.org/10.5852/ejt.2022.821.1799

5. Bopearachchi, D.P., Eberle, J., and **Benjamin, S.P.** (2022). Molecular and morphological species delimitation suggest a single species of the beetle-spider genus *Ballus* in Sri Lanka (Araneae: Salticidae). *Journal of Arachnology*, 50(3), p.314-322. [SJR Quartile: Q2]
   http://www.doi.org/10.1636/JoA-S-21-040

Food Chemistry Research Programme

1. Gunarathna, K.M.R.U. Harshani Nadeeshan Anni Lu Jinyao Li Baohong Zhang Tianlei Ying Jun Lu (2022). Potential Nutraceutical Use of *Tribulus terrestris* L. in Human Health. *Food Review International*, p.1-31. [SJR Quartile: Q1]
   http://www.doi.org/10.1080/87559129.2022.2067172

2. Gunarathna, K.M.R.U., **Marikkar, J.M.N.,** Yalegama, L.L.W.C., and Mendis, E., (2022). FTIR spectral analysis combined with chemometrics in evaluation of composite mixtures of coconut testa flour and wheat flour. *Journal of Food Measurement and Characterization*, 16, p.1796–1806. [SJR Quartile: Q2]
   http://www.doi.org/10.1007/s11694-022-01287-4

3. **Marikkar, J.M.N.,** Yanty, N.A.M., Musthafa, S., and Miskandar, M.S. (2022). Recent advances in plant-based fat formulation as substitute for lard. *Grasas Y Aceites*, 72(2), p.1-17. [SJR Quartile: Q3]
   http://www.doi.org/10.3989/gya.0439211

4. Adekola, K., and **Marikkar, J.M.N.** (2022). Biochemical study on the anti-hyperglycemic effects of coconut testa *(Cocos nucifera* L.*)* and red kidney bean *(Phaseolus vulgaris)* seed coat in Streptozotocin-induced diabetic rats. *Journal of Food Chemistry and Nanotechnology*, 8(1), p.6-12. [SJR Quartile: Q3]
http://www.doi.org/10.17756/jfcn.2022-120

5. Gunarathna, K.M.R.U., **Marikkar, J.M.N.,** Mendis, E., Yalegama, L.L.W.C., **Jayasinghe, L.,** and Ulpathakumbura, B.S.K. (2022). Mid-IR spectral characterization and chemometric evaluation of different solvent extracts of coconut testa flour. *Journal of Food Chemistry and Nanotechnology*, 8(3), p.69-75. [SJR Quartile: Q3]
https://foodchemistryjournal.com/2022/07/07/mid-ir-spectral-characterization-and-chemometric-evaluation-of-different-solvent-extracts-of-coconut-testa-flour/

6. Gunarathna, K.M.R.U., **Marikkar, J.M.N.,** Mendis, E., Yalegama, C., **Jayasinghe, L., Liyanage, R.,** and Jayaweera, S. (2022). Bioactivity studies of different solvent extracts of partially defatted coconut testa obtained from selected coconut cultivars. *The Journal of Agricultural Sciences - Sri Lanka*, 17(1), p.171-184. [SJR Quartile: N/A]
http://www.doi.org/10.4038/jas.v17i1.9618

7. Sewwandi, S.M.V.K., Jayawardana, B.C., Sivakanesan, R., **Wijesundara, D.S.A.,** Alles, N., **Marikkar, J.M.N.,** and **Liyanage, R.** (2022). Nutritional properties, antioxidant potential, and antidiabetic effect of raw and processed *Artocarpus nobilis* (Ceylon breadfruit) seeds. *Ceylon Journal of Science*, 51(4), p.481-491. [SJR Quartile: N/A]
http://www.doi.org/10.4038/cjs.v51i4.8065

8. S.A.F. Rushdha; B.S.K. Ulpathakumbura; C. Yalegama; **Marikkar, J.M.N.** (2022). Evaluation of staple foods supplemented with defatted coconut testa flour. *International Journal on Coconut Research and Development*, 38, p.43-50. [SJR Quartile: N/A]
http://www.doi.org/10.37833/cord.v38i.443

9. **Marikkar, J.M.N.,** Gunarathna, K.M.R.U., and Yalegama, L.L.W.C. (2022). Quantitative models for prediction of palm olein adulteration in coconut testa oil. Sri Lankan *Journal of Technology*, 03(2), p.9-14. [SJR Quartile: N/A],
https://seu.ac.lk/sljot/

Microbial Biotechnology Research Programme

1. Liu, J., Huang, T., Liu, G., Ye, Y., Soteyome, T., **Seneviratne, G.,** Xiao, G., Xu, Z., Kjellerupi, B.V. (2022). Microbial Interaction between *Lactiplantibacillus plantarum* and *Saccharomyces cerevisiae:* Transcriptome Level Mechanism of Cell-Cell Antagonism. *Microbiology spectrum*, 10(5), p.1-18. [SJR Quartile: Q1]
http://www.doi.org/10.1128/spectrum.01433-22

2. Perera, M., Wijesundera, S., Wijayarathna, C.D., **Seneviratne, G.,** Jayasena, S. (2022). Identification of long-chain alkane-degrading (LadA) monooxygenases in *Aspergillus flavus* via in silico analysis. *Frontiers in Microbiology*, p.1-14. [SJR Quartile: Q1]
http://www.doi.org/10.3389/fmicb.2022.898456

3. Henagamage, A.P., Peries, C.M., **Seneviratne, G.** (2022). Fungal-bacterial biofilm mediated heavy metal rhizo-remediation. *World Journal of Microbiology and Biotechnology*, 38(85), p.1-13. [SJR Quartile: Q2]
http://www.doi.org/10.1007/s11274-022-03267-8

4. Rathnathilaka, T., Premarathna, M., Madawala, S., Pathirana, A., Karunaratne, K., **Seneviratne, G.** (2022). Biofilm biofertilizer application rapidly increases soil quality and grain yield in large-scale conventional rice cultivation: a case study. *Journal of Plant Nutrition*, p.1-12. [SJR Quartile: Q2] http://www.doi.org/10.1080/01904167.2022.2067064

5. Jayasekara, A., Ekanayake, S., Premarathna, M., Warnakulasooriya, D., Abeysinghe, C., **Seneviratne, G.** (2022). Organic material inputs are not essential for paddy soil carbon sequestration. *Environmental Challenges*, 8, p.1-8. [SJR Quartile: Q3] http://www.doi.org/10.1016/j.envc.2022.100551

6. Abeysiriwardana, P.C., Jayasinghe-Mudalige, U.K., **Seneviratne, G.** (2022). Probing into the concept of 'research for society' to utilize as a strategy to synergize flexibility of a research institute working on eco-friendly commercial agriculture. *All Life*, 15(1), p.220-233. [SJR Quartile: Q3] http://www.doi.org/10.1080/26895293.2022.2038280

7. Gangthilaka, K.M.S.M., Premarathna, M., Madawala, H.M.S.P., and **Seneviratne, G.** (2022). Can Biofilm Biofertilizer Cut Down Chemical Fertilizers in Leafy Vegetable Cultivation? A Case Study with *Centella asiatica* (Gotukola). *The Journal of Agricultural Sciences - Sri Lanka*, 17(3), p.370-378. [SJR Quartile: Q3] http://www.doi.org/10.4038/jas.v17i3.9918

8. Premarathna, M., Rathnathilaka, T., **Seneviratne, G.,** Madawala, S. (2022). Engineering Microbial Biofilms for Improved Productivity of Biochemicals Important in Restoration of Degraded Ecosystems. *Advances in Bioscience and Biotechnology*, 13(03), p.145-158. [SJR Quartile: N/A] http://www.doi.org/10.4236/abb.2022.133007

9. Hapangama, A., **Seneviratne, G.,** Kuruppuarachchi, K.A.L.A. (2022). An adjunct paradigm in the causation and treatment of mental illness: the gut-brain axis and microbial remedies. *Journal of the Postgraduate Institute of Medicine*, 9(1), p.1-6. [SJR Quartile: N/A] http://www.doi.org/10.4038/jpgim.8372

10. Singhalage, I.D., **Seneviratne, G.,** Madawala, H.M.S.P. (2022). Intimate interactions of Enterobacter, Aspergillus and Enterobacter-Aspergillus biofilm with strawberry, tomato and rice: early plant growth under glass house conditions. *Ceylon Journal of Science*, 51(4), p.379-387. [SJR Quartile: N/A] http://www.doi.org/10.4038/cjs.v51i4.8055

Microbiology & Soil Ecosystem Research Programme

1. Kirisan, A., Gnanavelraja, N., and **Ratnayake, R.R.** (2022). Screening of potential aerobic denitrifying bacteria for nitrate removal from water. *Journal of The National Science Foundation of Sri Lanka*, 50(3), p.639 - 649. [SJR Quartile: Q3] http://dx.doi.org/10.4038/jnsfsr.v50i3.10610

2. Bowange, Tharangika K., Hossain, Md. Fuad, Wijesekara, Kavinda A., Wasantha Kumara, K.L., and **Ratnayake, R.R.** (2022). Investigation of the value-added potential of some selected freshwater cyanobacteria. *Kuwait Journal of Science*, p.1-20. [SJR Quartile: Q2] https://doi.org/10.48129/kjs.15295

3. Bowange, R. W. T. M. R. T. K., Jayasinghe, M. M. P. M., Yakandawala, D. M. D., Kumara, K. L. W., Abeynayake, S.W., and **Ratnayake, R.R.** (2022). Morphological characterization of culturable cyanobacteria isolated from selected extreme ecosystems of Sri Lanka. *Ceylon Journal of Science*, 51(5), p.577-588. [SJR Quartile: N/A] http://doi.org/10.4038/cjs.v51i5.8084

Molecular Microbiology & Human Diseases Research Programme

1. **Magana-Arachchi, D.N.,** Wanigatunge, R.P., and **Vithanage, M.** (2022). Can infectious modeling be applicable globally: Lessons from COVID 19. *Current Opinion in Environmental Science & Health*, 30, p.1-8. [SJR Quartile: Q1]
   http://www.doi.org/10.1016/j.coesh.2022.100399

2. **Vithanage, M.,** Bandara, P.C., Novo, Luis A.B., Kumar, A., Ambade, B., Naveendrakumar, G., Ranagalage, M., and **Magana-Arachchi, D.N.** (2022). Deposition of trace metals associated with atmospheric particulate matter: Environmental fate and health risk assessment. *Chemosphere*, 303, p.1-11. [SJR Quartile: Q1]
   https://doi.org/10.1016/j.chemosphere.2022.135051

3. Weralupitiya, C., Wanigatunge, R.P., Gunawardana, D., **Vithanage, M.,** and **Magana-Arachchi, D.N.** (2022). Cyanotoxins uptake and accumulation in crops: Phytotoxicity and implications on human health. *Toxicon*, 211, p.21-35. [SJR Quartile: Q3]
   https://doi.org/10.1016/j.toxicon.2022.03.003

4. Jayantha, J., Jayasuriya, B., Herath, D., Suresh, S., and **Magana-Arachchi, D.N.** (2022). Determination of Anti-tuberculosis activity of *Psychotria sarmentosa, Aponogeton crispus* and two species of *Pleurotus* mushrooms. *Research Journal of Pharmacy and Technology*, 15(3), p.954-960. [SJR Quartile: Q3]
   http://www.doi.org/10.52711/0974-360X.2022.00159

5. Bandara, W.R.U.A, and **Magana-Arachchi, D.N.** (2022). Tuberculosis Diagnosis in the Era of SARS-CoV-2. *South Asian Journal of Research in Microbiology*, 12(2), p.32-48. [SJR Quartile: N/A]
   http://www.doi.org/10.9734/SAJRM/2022/v12i230270

6. **Magana-Arachchi, D.N.,** and Perera, W.A.K. (2022). Microbial Diversity in Rainwater with Correspondence to Particulate Matter and Environmental Factors. *Journal of Sustainability and Environmental Management*, 1(4), p.410-418. [SJR Quartile: N/A]
   https://www.nepjol.info/index.php/josem

7. Saseevan, S., Rajapakse, S., and **Magana-Arachchi, D.N.** (2022). RNA extraction from urine sediment: A cost-effective protocol for gene expression analysis in renal pathology. *Ceylon Journal of Science*, 51(5), p.531-539. [SJR Quartile: N/A]
   http://doi.org/10.4038/cjs.v51i5.8080

8. Gorczynski, R.M., **Wickramasinghe, N.C**., Lindley, R.A, and Steele, E.J. (2022). Time for Fresh Constructive Scientific Debate on the Origin of, Immune Response to, And Optimal Vaccination Strategy for, Infection with SARS-Cov-2. *Journal of Clinical Immunology and Infectious Diseases*, 6(3), p.1-3. [SJR Quartile: N/A]
   https://www.imedpub.com/clinical-immunology-and-infectious-diseases/

Nutritional Biochemistry Research Programme

1. Gunarathna, K.M.R.U., **Marikkar, J.M.N.,** Mendis, E., Yalegama, C., **Jayasinghe, L., Liyanage, R.,** and Jayaweera, S. (2022). Bioactivity studies of different solvent extracts of partially defatted coconut testa obtained from selected coconut cultivars. *The Journal of Agricultural Sciences - Sri Lanka*, 17(1), p.171-184. [SJR Quartile: N/A]
   http://www.doi.org/10.4038/jas.v17i1.9618

2. Sewwandi, S.M.V.K., Jayawardana, B.C., Sivakanesan, R**., Wijesundara, D.S.A.,** Alles, N., **Marikkar, J.M.N., and Liyanage, R.** (2022). Nutritional properties, antioxidant potential and antidiabetic effect of raw and processed *Artocarpus nobilis* (Ceylon breadfruit) seeds. *Ceylon Journal of Science,* 51(4), p.481-491. [SJR Quartile: N/A]
http://www.doi.org/10.4038/cjs.v51i4.8065

Plant Stress Biology & Molecular Genetics Research Programme

1. de Mel, S., **Seneweera, S.,** de Mel, R., Medawala, M., Abeysinghe, N., Dangolla, A., Weerakoon, D., Maraseni, T., and Allen, B. (2022). Virtual fencing of captive Asian elephants fitted with an aversive geofencing device to manage their movement. *Applied Animal Behaviour Science*, 258, p.1-11. [SJR Quartile: Q1]
https://doi.org/10.1016/j.applanim.2022.105822

2. de Mel, S., **Seneweera, S.,** de Mel, R., Dangolla, A., Weerakoon, D., Maraseni, T., and Allen, B. (2022). Current and Future Approaches to Mitigate Conflict between Humans and Asian Elephants: The Potential Use of Aversive Geofencing Devices. *Animals*, 12(21), p.1-29. [SJR Quartile : Q1]
http://www.doi.org/10.3390/ani12212965

Plant Taxonomy & Conservation Research Programme

1. Low, Y. W., Rajaraman, S., Crystal, M. Tomlin, C. M., Ahmad, J. A., Jayasinghe, H. D., Kathriarachchi, H. S., Wanma, J. F., **Wijesundara, D.S.A.,** Khew, G. S.W., and Middleton, D. J. (2022). Genomic insights into rapid speciation within the world's largest tree genus *Syzygium. Nature Communications*, 13(5031), p.1-15. [SJR Quartile: Q1]
http://www.doi.org/10.1038/s41467-022-32637-x

2. Wijayawardene, N. N., Hyde, K. D., Dai, D. Q., Sánchez-García, M., Goto, B. T., Saxena, R. K., Erdoğdu, M., Selçuk, F., Rajeshkumar, K. C., Aptroot, A., Błaszkowski, J., Boonyuen, N., da Silva, G. A., de Souza, F. A., Dong, W., Ertz, D., Haelewaters, D., Jones, E. B. G., Karunarathna, S. C., Kirk, P. M., Kukwa, M., Lumbsch, H. T., Maharachchikumbura, S. S. N., Marguno, F., **Wijesundara, D.S.A.,** Stadler, M., Yurkov, A., and Thines, M. (2022). Outline of Fungi and fungus-like taxa – 2021. *Mycosphere*, 13(1), p.53-453. [SJR Quartile: Q1]
https://www.mycosphere.org/

3. Dissanayake, P. K., Wekumbura, W. G. C., Wijeratne, A. W., and **Wijesundara, D.S.A.** (2022). Morphological characterization, antioxidant capacity and diversity of *Syzygium cumini* trees from Sri Lanka. *Horticultural Plant Journal*, 8(1), p.53-67. [SJR Quartile: Q1]
https://doi.org/10.1016/j.hpj.2021.09.002

4. Wijewickrama, T., Karunarathne, I., **Wijesundara, D.S.A.,** Nijamdeen, M., Ekanayake, G., Jayawardhane, J., Abeysundara, A. P., and Madawala, S. (2022). Spread of *Bambusa bambos* (L.) Voss influences litter-dwelling arthropod communities in native forests: a case study from Sri Lanka. *Ecological Entomology*, p.1-10. [SJR Quartile: Q1]
https://doi.org/10.1111/een.13182

5. Nilanthi, R. M. R., Samarakoon, H., Jayawardana, N., Hathurusinghe, B., **Wijesundara, D.S.A.,** and Bandaranayake, P. (2022). Strobilanthes glandulata (Acanthaceae), a new species from Sri Lanka based on the morphological and molecular evidences. *Phytotaxa*, 573(1), p.1-14. [SJR Quartile: Q3]
https://www.biotaxa.org/Phytotaxa/article/view/phytotaxa.573.1.1

6. Rajapaksha, R., Zhang, L. B., Pushpakumara, G., and **Wijesundara, D.S.A.** (2022). An analysis of the current status and future prospects of Sri Lankan pteridophytes towards a new dimension. *Biologia*, 0, p.1-19. [SJR Quartile: Q3]
https://doi.org/10.1007/s11756-022-01139-y

7. Wijewickrama, T., Karunaratne, I., **Wijesundara, D.S.A.,** and Madawala, S. (2022). Impacts of Bambusa bambos spread on seedling recruitment, mortality and regeneration potential of native species in tropical moist evergreen forests of Sri Lanka. *Journal of Tropical Forest Science*, 34(1), p.48-62. [SJR Quartile: Q2]
https://doi.org/10.26525/jtfs2022.34.1.48

8. Karunarathna, H. G. M. K., Medagama, K., **Wijesundara, D.S.A.,** and **Iqbal, M.C.M.** (2022). Micropropagation of Stevia rebaudiana (Bertoni) Bertoni using nutrient water of Cocos nucifera var. aurantiaca (King coconut) as a natural growth enhancer. *Journal of the National Science Foundation of Sri Lanka*, 50(1), p.3-12. [SJR Quartile: Q3]
http://www.doi.org/10.4038/jnsfsr.v50i1.10380

9. Tennakoon, T. M. S. G., Borosova, R., Suraweera, C., Herath, S., De Silva, T., Padumadasa, C., Weerasena, J., Gunaratna, N., Gunasekera, N., Edwards, S., and **Wijesundara, D.S.A.** (2022). First record of Thottea duchartrei Sivar., A. Babu & Balach. (Aristolochiaceae) in Sri Lanka. *Journal of the National Science Foundation of Sri Lanka,* 50(2), p.441-452. [SJR Quartile: Q3]
http:/dx.doi.org/10.4038/jnsfsr.v50i2.10546

10. Wijayawardene, N, N., Rajakaruna, S., Dong- Qin Dai, Jayasekara, S., Warnakula, L., Ariyawansa, K. G. S. U., Fernando, E. Y., Jayasekara, P., Xing-Chen Jin, Chandana, E. P. S., Nanayakkara, and **Wijesundara, D.S.A.** (2022). Necessity of a National Fungarium and a Culture Collection for Fungi in Sri Lanka. *Chiang Mai Journal of Science*, 49(2), p.248-271. [SJR Quartile: Q4]
http://www.doi.org/10.12982/CMJS.2022.027

11. Sewwandi, S.M.V.K., Jayawardana, B.C., Sivakanesan, R., **Wijesundara, D.S.A.,** Alles, N., **Marikkar, J.M.N.,** and **Liyanage, R**. (2022). Nutritional properties, antioxidant potential and antidiabetic effect of raw and processed *Artocarpus nobilis* (Ceylon breadfruit) seeds. *Ceylon Journal of Science*, 51(4), p.481-491. [SJR Quartile: N/A]
http://www.doi.org/10.4038/cjs.v51i4.8065

12. Jayasinghe, H.D., **Wijesundara, D.S.A**, Ranasinghe, R.A.S.W., and Kathriarachchi, H.S. (2022). Two new species of Syzygium (Myrtaceae) from Sri Lanka, with lectotypification and recircumscription of Syzygium assimile. *Gardens' Bulletin Singapore*, 74(2), p.275-292. [SJR Quartile: N/A]
http://www.doi.org/10.26492/gbs74(2)

CHEMICAL AND PHYSICAL SCIENCES RESEARCH DIVISION

Computer Science, Mathematics &Statistics Research Programme

1. Abeysiriwardana, P.C, Jayasinghe Mudalige, U. K. **Kodituwakku, S. R.,** and Madhushani, K. B. (2022). Intelligently driven performance management: an enabler of real time research forecasting for innovative commercial agriculture. *SN Social Sciences*, 2022(2), p.1-36. [SJR Quartile: N/A]
https://doi.org/10.1007/s43545-022-00484-8

Condensed Matter Physics & Solid-State Chemistry Research Programme

1. **Dissanayake, M.A.K.L.,** Umair, K., **Senadeera, G.K.R.,** Jaseetharan, T., Weerasinghe, A.M.J.S., and **Wijayasinghe, H.W.M.A.C**. (2022). Plasmonic gold nanoparticle incorporated MgO-coated SnO_2 photoanode for efficiency enhancement in dye-sensitized solar cells. *Solar Energy*, 233, p.363–377. [SJR Quartile: Q1]
https://doi.org/10.1016/j.solener.2022.01.038

2. **Senadeera, G.K.R.,** Sandamali, W.I., Kumari, J.M.K.W., Jaseetharan, T., Weerasinghe, A.M.J.S., Sonar, P., Perera, V.P.S., Rajendra, J.C.N., Karthikeyan, N., and **Dissanayake, M.A.K.L.** (2022). Morphological and structural study on low-cost SnO_2 counter electrode and its applications in quantum dot sensitized solar cells with polysulfide electrolyte. *Materials Science & Engineering* B, 286, p.1-11. [SJR Quartile: Q2]
https://doi.org/10.1016/j.mseb.2022.116075

3. **Dissanayake, M.A.K.L.,** Jaseetharan, T., **Senadeera, G.K.R.,** Mellander, B.E., Albinsson, I., and Furlani, M. (2022). Optimizing the size and amount of CdS quantum dots for efficiency enhancement in CdS/N719 co-sensitized solar cells. *Physica E: Low-dimensional Systems and Nanostructures*, 144, p.1-9. [SJR Quartile: Q2]
https://doi.org/10.1016/j.physe.2022.115469

4. Jayamaha, J.H.T.B., Jathushan, V., Vignarooban, K., Sashikesh, G., Velauthamurty, K., and **Dissanayake, M.A.K.L.** (2022). Novel gel-polymer electrolytes for sodium-ion secondary batteries - an electrochemical impedance spectroscopic study. *Materials Science Forum*, 1053(1), p.119-124. [SJR Quartile: Q3]
http://www.doi.org/10.4028/p-j882uu

5. Sandamali, W.I., **Senadeera, G.K.R.,** Liyanage, T.S.M., Kumari, J.M.K.W., Jaseetharan, T., Weerasinghe, A.M.J.S., Perera, V.P.S., Rajendra, J.C.N., Karthikeyan, N., and **Dissanayake, M.A.K.L.** (2022). Efficient triple-layer photoanode incorporated with nitrogen-doped TiO_2 nanocrystals for CdS quantum dot-sensitized solar cells. *Ceylon Journal of Science*, 51(4), p.449-457. [SJR Quartile: N/A]
http://doi.org/10.4038/cjs.v51i4.8062

Energy & Advanced Material Chemistry Research Programme

1. Farhana, M.A. , **Bandara, J.** (2022). Enhancement of the photoconversion efficiency of Sb_2S_3 based solar cell by overall optimization of electron transport, light harvesting and hole transport layers. *SolarEnergy*,247,p.32-40.[SJRQuartile:Q1]
http://www.doi.org/10.1016/j.solener.2022.10.025

2. Abeykoon, A.M.K.L., Tan, H.Y., YAN, C.F, and **Bandara, J.** (2022). Significant role of the initial precursor sulfur concentration in the photoelectrochemical hydrogen production of Cu_2ZnSnS_4 photocathode prepared by thermal evaporation. *Journal of Nanophotonics*, 16(1), p.1-15.[SJR Quartile:Q3]
http://www.doi.org/10.1117/1.JNP.16.016001

Material Processing & Device Fabrication Research Programme

1. **Kumara, G.R.A.,** Bandara, T.M.W.J., Tennakone, K., Rajapakse, R.M.G., Rupasinghe, C.P., Wimalasena, I.G.K.J., Dissanayake, M., Waduge, N.M., and Medagedara, A.D.T. (2022). Triethylammonium thiocyanate ionic liquid electrolyte-based supercapacitor fabricated using coconut shell-derived electronically conducting activated charcoal electrode material. *Journal of Energy Storage*, 55, p.1-11. [SJR Quartile: Q1]
https://doi.org/10.1016/j.est.2022.105628

2. Golgic, E., Kamali, A.K., Keppetipola, N.M., Alonge, B., **Kumara, G.R.A.,** Sonnemann, G., Toupance, T., and Cojocaru, L. (2022). Life Cycle Assessment of Supercapacitor Electrodes Based on Activated Carbon from Coconut Shells. *ACS Sustainable Chemistry and Engineering*, 10(46), p.1-10. [SJR Quartile: Q1]
http://www.doi.org/10.1021/acssuschemeng.2c03239

Nanotechnology and Advance Materials Research Programme

1. **Dissanayake, M.A.K.L.,** Umair, K., **Senadeera, G.K.R.,** Jaseetharan, T., Weerasinghe, A.M.J.S., and **Wijayasinghe, H.W.M.A.C.** (2022). Plasmonic gold nanoparticle incorporated MgO-coated SnO_2 photoanode for efficiency enhancement in dye-sensitized solar cells. *Solar Energy*, 233, p.363–377. [SJR Quartile: Q1]
https://doi.org/10.1016/j.solener.2022.01.038

2. Naranpanawa, H.M.H.D.K., Amaraweera, T.H.N.G., Balasooriya, N.W.B., Attanayake, A.N.B., and **Wijayasinghe, H.W.M.A.C.** (2022). Development of vein graphite by optimizing the NaOH concentration in alkali roasting-acid leaching process for the anode application in rechargeable Li-ion batteries. *Ionics*, p.1-16. [SJR Quartile: Q2]
http://www.doi.org/10.1007/s11581-022-04819-6

3. Jathushan, V., Jayamaha, J.H.T.B., **Wijayasinghe, H.W.M.A.C.,** and Vignarooban, K. (2022). Electrochemical Studies on Poly (Ethylene Oxide) Based Gel-Polymer Electrolytes for Magnesium-Ion Batteries. *Material Science Forum*, 1077, p.229-234. [SJR Quartile: Q3]
http://www.doi.org/10.4028/p-8k8x71

4. Kanagaratnam, J.N., Amaraweera, T.H.N.G., Balasooriya, N.W.B., and **Wijayasinghe, H.W.M.A.C.** (2022). Chemical intercalation of graphite using chromium trioxide for the anode application in rechargeable sodium-ion batteries. *Ceylon Journal of Sciences*, 51(1), p.21-27. [SJR Quartile: N/A]
http://www.doi.org/10.4038/cjs.v51i1.7975

Natural Products Research Programme

1. Napagoda, M., Gerstmeier, J., Butschek, H., Lorenz, S., De Soyza, S., Qader, M., Nagahawatte, A., Wijayaratne, G.B., Schneider, B., Svatoš, A., **Jayasinghe, L.,** Koeberle, A., and Werz, O. (2022). *Plectranthus zeylanicus:* A rich source of secondary metabolites with antimicrobial, disinfectant and anti-inflammatory activities. *Pharmaceuticals*, 15(4), p.1-15. [SJR Quartile: Q1]
https://doi.org/10.3390/ph15040436

2. Princiotto, S., **Jayasinghe, L.,** and Dallavalle, S. (2022). Recent advances in the synthesis of naturally occurring tetronic acids. *Bioorganic Chemistry*, 119, p.1-32. [SJR Quartile: Q2]
https://doi.org/10.1016/j.bioorg.2021.105552\

3. **Adikaram, N.K.B.,** Maharachchikumbura, S.S.N., Yakandawala, D.M.D., Manawadu, L.N., Dissanayake, D.M.S., and **Jayasinghe, L.** (2022). Postharvest stem-end browning (SEB) disease in ripe mango *(Mangifera indica L.)* cultivar TomEJC. *European Journal of Plant Pathology*, p.1-18. [SJR Quartile: Q1]
https://doi.org/10.1007/s10658-022-02616-5

4. Othman, W.N.N.W., Salim, F., Abdullah, N.N., Bakara, S.I.A, Awang, K., **Jayasinghe, L.,** and Ismail, N.H. (2022). (R)-13a alpha -Densiindolizidine, A new phenanthroindolizidine alkaloid from *Cryptocarya densiflora* Blume (Lauraceae) and molecular docking against SARS-CoV-2. *Natural Product Communications*, 17(8), p.1-8. [SJR Quartile: Q3]
http://www.doi.org/10.1177/1934578X22111422

5. Gunarathna, K.M.R.U., **Marikkar, J.M.N.,** Mendis, E., Yalegama, L.L.W.C., **Jayasinghe, L.,** and Ulpathakumbura, B.S.K. (2022). Mid-IR spectral characterization and chemometric evaluation of different solvent extracts of coconut testa flour. *Journal of Food Chemistry and Nanotechnology*, 8(3), p.69-75. [SJR Quartile: Q3]
https://foodchemistryjournal.com/2022/07/07/mid-ir-spectral-characterization-and-chemometric-evaluation-of-different-solvent-extracts-of-coconut-testa-flour/

6. Gunarathna, K.M.R.U., **Marikkar, J.M.N.,** Mendis, E., Yalegama, C., **Jayasinghe, L., Liyanage, R.,** and Jayaweera, S. (2022). Bioactivity studies of different solvent extracts of partially defatted coconut testa obtained from selected coconut cultivars. *The Journal of Agricultural Sciences - Sri Lanka*, 17(1), p.171-184. [SJR Quartile: N/A]
http://www.doi.org/10.4038/jas.v17i1.9618

7. Liyanaarachchi, C.E., Napagoda, M., Malkanthi, S., Abayawardana, K., Witharana, S., and **Jayasinghe, L.** (2022). Development of herbal sunscreen formulations from the leaves of Sri Lankan medicinal plants, *Hibiscus furcatus* wild. and Olax zeylanica Linn. *Journal of Science*, 13(2), p.1-12. [SJR Quartile: N/A]
https://doi.org/10.4038/jsc.v13i2.44

EARTH AND SPACE SCIENCES RESEARCH DIVISION

Earth Resources and Renewable Energy Research Programme

1. Rathnayake, R.A., Wijekoon, H.S., Pemasiri, B.M.K., and **Subasinghe, N.D. (2022).** Time-dependent finite-difference model for transient and steady-state analysis of thermoelectric bulk materials. *Physica Scripta*, 97(12), p.1-12. [SJR Quartile: Q2]
http://www.doi.org/10.1088/1402-4896/ac9e7e

2. Narangammana, L.K., Bandara, Y.M.D.C.Y., Ajith de Silva, L., **Subasinghe, N.D.,** and Bandara, T.M.W.J. (2022). Organic inorganic hybrid thermocouple intended for thermoelectric generators using low-cost nontoxic materials. *Journal of Electronic Materials*, 50, p.5462–5472. [SJR Quartile: Q2]
https://doi.org/10.1007/s11664-022-09799-x

3. Samaranayake, S.A., Nalin de Silva, Dahanayake, U., Wijewardane, H.O., and **Subasinghe, N.D. (**2022). Delineation of near surface water flow path of Wahawa geothermal field by using 2d inversion of resistivity data. *Journal of Geoscience and Environment Protection*, 10, p.327-339. [SJR Quartile: N/A]
https://doi.org/10.4236/gep.2022.108020

ENVIRONMENT SCIENCE RESEARCH DIVISION

Environmental Science Research Programme

a. Water Quality Research

1. Zhang, Y, Chen, X, C, M.S, Guo, Z., Chen, Y.H., Cui, K.P., Ding, Z.G, and **Weerasooriya, R.** (2022). Binding Fe-doped g-C3N4 on the porous diatomite for efficient degradation of tetracycline via photo-Fenton process. *Journal of Environmental Chemical Engineering*, 10(3), p.1-10. [SJR Quartile: Q1]
https://doi.org/10.1016/j.jece.2022.107406

2. Hansima, M.A.C.K., Jayaweera, A.T., Ketharani, J., Ritigala, T, Zheng, L. Samarajeewa, D. R., Nanayakkara, K.G.N., Herath, A. C., Makehelwala, M Jinadasa, K.B. S.N., Weragoda, S.K., Wei, Y, and **Weerasooriya, R.** (2022). Characterization of humic substances isolated from a tropical zone and their role in membrane fouling. *Journal of Environmental Chemical Engineering*, 10(3), p.1-12. [SJR Quartile: Q1]
https://doi.org/10.1016/j.jece.2022.107456

3. Bao, Q., Liu, Y., Liang, Y., **Weerasooriya, R.,** Li, H., Wu, Y., and Chen, X. (2022). Tea polyphenols mediated Zero-valent Iron/Reduced graphene oxide nanocomposites for electrochemical determination of Hg2+. *Journal of Electroanalytical Chemistry*, 917, p.1-11. [SJR Quartile: Q1]
https://doi.org/10.1016/j.jelechem.2022.116428

4. Indika, S., Wei, Y., Cooray, T., Ritigala. T., Jinadasa, K. B. S. N., Weragoda, S. K., and **Weerasooriya, R.** (2022). Groundwater-Based Drinking Water Supply in Sri Lanka: Status and Perspectives. *Water*, 14(9), p.1-24. [SJR Quartile: Q1]
http://www.doi.org/10.3390/w14091428

5. Wu, J., Wu, Z., **Weerasooriya, R.,** Chen, X., and Huang, Y. (2022). Theoretical study of distance-dependent optical fiber SPR sensor based on MoS_2 nanosheets. Photonics and Nanostructures - *Fundamentals and Applications*, 51, p.1-7. [SJR Quartile: Q2]
https://doi.org/10.1016/j.photonics.2022.101045

6. Munasinghe, E., Jayawardane, Y., Rajapakshe, A., Bandara, A., **Weerasooriya, R.,** and **Jayarathna, L.** (2022). Fabrication of water-soluble L-cysteine capped CdTe quantum dots in zeolite confinement. *Exploratory Materials Science Research*, 3(1), p.39-44. [SJR Quartile: N/A]
https://dx.doi.org/10.47204/EMSR.3.1.2021.039-044

7. Wu, Z., Senanayake, N., Dayaratna, S., Bandara, D. Pathmanadan, R., Ritigala, T., Weragoda, S.K., **Jayarathna, L.,** Jayasundara, A.C.A., Wei, Y., Chen, X. and and **Weerasooriya, R**. (2022). Sustainable pressure-driven membrane facility controlled by a smartphone application for groundwater desalination in the dry zone of Sri Lanka. *Ceylon Journal of Science*, 51(1), p.51-62. [SJR Quartile: N/A]
http://www.doi.org/10.4038/cjs.v51i1.7979

8. **Weerasooriya, R.** (2022). Editorial - Drinking Water Problem in the Dry Zone of Sri Lanka–A Paradigm Shift. *Ceylon Journal of Science*, 51(2), p.95-96. [SJR Quartile: N/A]
http://doi.org/10.4038/cjs.v51i2.8002

b. Material Development and Pollutant Remediation

1. Munasinghe, E., Jayawardane, Y., Rajapakshe, A., Bandara, A., **Weerasooriya, R.,** and **Jayarathna, L.** (2022). Fabrication of water-soluble L-cysteine capped CdTe quantum dots in zeolite confinement. *Exploratory Materials Science Research*, 3(1), p.39-44. [SJR Quartile: N/A]
https://dx.doi.org/10.47204/EMSR.3.1.2021.039-044

2. Wu, Z., Senanayake, N., Dayaratna, S., Bandara, D. Pathmanadan, R., Ritigala, T., Weragoda, S.K., **Jayarathna, L.,** Jayasundara, A.C.A., Wei, Y., Chen, X. and and **Weerasooriya, R**. (2022). Sustainable pressure-driven membrane facility controlled by a smartphone application for groundwater desalination in the dry zone of Sri Lanka. *Ceylon Journal of Science*, 51(1), p.51-62. [SJR Quartile: N/A]
http://www.doi.org/10.4038/cjs.v51i1.7979

Plant & Environmental Sciences Research Programme

1. Karunarathna, H. G. M. K., Medagama, K., **Wijesundara, D.S.A**., and **Iqbal, M.C.M.** (2022). Micropropagation of Stevia rebaudiana (Bertoni) Bertoni using nutrient water of Cocos nucifera var. aurantiaca (King coconut) as a natural growth enhancer. *Journal of the National Science Foundation of Sri Lanka*, 50(1), p.3-12. [SJR Quartile: Q3]
http://www.doi.org/10.4038/jnsfsr.v50i1.10380

PATENTS

Dr. Athula Wijayasinghe

A patent application was filed in 2022, based on the invented ‘’Method of Structural modification of vein graphite through varying interlayer spacing by thermal annealing for the anode electrode of the sodium ion rechargeable battery’’ (Sri Lankan patent application number: 22136).

ABSTRACTS

BIOLOGICAL SCIENCES RESEARCH DIVISION

Food Chemistry Research Programme

1. Siriwardhene, K.A, **Marikkar, J.M.N, Jayasinghe, L,** and **Adikaram, N.K.B** (2022). Enzyme inhibitory, antioxidant and phytotoxic properties of *Pilea microphylla* (Urticaceae). *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Sciences*.

2. Tennakoon, T.M.K.P, Yakandawala, D, **Marikkar, J.M.N, Adikaram, N.K.B,** and **Jayasinghe, L (**2022). Investigation of antioxidant, cytotoxic and phytotoxic activity of plant extracts from *Eichhornia crassipes*. *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Sciences*.

3. Kulathunge, T.D.A.D.K, **Marikkar, J.M.N, Adikaram, N.K.B,** and **Jayasinghe, L.** (2022). Bioassays and enzyme inhibitory activities of *Alysicarpus vaginalis* and *Biophytum reinwardtii. National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Research*.

4. Kulathunge. T.D.A.D.K., **Marikkar, J.M.N., Adikaram, N.K.B.,** and **Jayasinghe, L.** (2022). Antifungal, antioxidant, cytotoxic, phytotoxic activities and alpha-amylase inhibition of *Mikania cordata* and *Plumeria obtusa*. *University of Peradeniya, Proceedings of the PGIS Research Congress (RESCON 2022)*.

5. Tennakoon.T.M.K.P., Yakandawala. D., **Marikkar, J.M.N., Adikaram, N.K.B.,** and **Jayasinghe, L.** (2022). Selected bioactivities of plant extracts from water lettuce, *Pistia stratiotes. University of Peradeniya, Proceedings of the PGIS Research Congress (RESCON 2022)*.

Microbial Biotechnology Research Programme

1. Jayaneththi, J.P.H.U., **Seneviratne, G.,** Madawala, H.M.S.P., Amarasekara, M.G.T.S. (2022). Biofilm-Enriched Eppawala Rock Phosphate as A Potential Fertilizer for Rice Cultivation: A Step Towards Reducing Chemical Fertilizers. *University of Peradeniya, Proceedings of the Postgraduate Institute of Science Research Congress, Sri Lanka: 28 th -30 th October 2022*.

2. Warnakulasooriya, W.M.K.D.S., Premarathna, M., Ekanayake, S.N.B., **Seneviratne, G.** (2022). Soil Physico-Chemical Parameters Alone Do Not Reflect Paddy Yield Increase Under Biofilm Biofertilizer Application: A Case Study in Ampara District. *University of Peradeniya, Proceedings of the Postgraduate Institute of Science Research Congress, Sri Lanka*.

3. Ismail, J.S.Z., **Seneviratne, G.** (2022). Fungal-bacterial biofilms: promises, progress and prospects. *Guangzhou, China, Asia-Pacific Biofilms 2022*.

4. Singhalage, I.D., **Seneviratne, G.,** Madawala, H.M.S.P. (2022). Development of biofertilizers for Strawberries: a microbial biofilm approach. *Guangzhou, China, Asia-Pacific Biofilms 2022*.

5. Perera, M., **Seneviratne, G.** (2022). Crude oil degrading microbial biofilms: a synthesis. *Guangzhou, China, Asia-Pacific Biofilms 2022*.

6. Ekanayaka, S., Jayasekara, A., Premarathna, M., Abeysinghe, C., **Seneviratne, G.** (2022). Soil carbon sequestration in lowland paddy cultivation: A Biofilm biofertilizer approach. *Guangzhou, China, Asia-Pacific Biofilms 2022*.

7. Premarathna, M., **Seneviratne, G.,** Madawala, S. (2022). Microbial biofilms can shape gut microbiota better than diet-based interventions. *Guangzhou, China, Asia-Pacific Biofilms 2022*.

8. **Seneviratne, G.** (2022). Why do we have to apply engineered biofilms to ecosystems and the environment?. *Guangzhou, China, Asia-Pacific Biofilms 2022*.

9. Jayasinghe J.A.W.W., **Seneviratne G.**, Wijepala P.C. (2022). Application of Microbial Biofilms to Reinstate Lost Soil Microbial Diversity under Global Warming: A Case Study. *Proceedings of the 26th International Forestry and Environment Symposium, University of Sri Jayewardenepura*.

10. Premarathna, M. **Seneviratne, G.,** Madawala, H.M.S.P. (2022). Biofilm medicines reinstate human gut microbiota for improved health. *Proceedings of the International Research Conference in Health Sciences 2022 - FAHS, USJ*

Microbiology & Soil Ecosystems Research Programme

1. Premalal, H.M.N.D., Perera, G.A.D., and **Ratnayake, R.R.** (2022). Soil carbon sequestration potential of dry-zone home gardens in Anuradhapura district, Sri Lanka. *University of Jaffna, 8th International Conference on Dry Zone Agriculture (ICDA 2022)*.

2. Weerasinghe, W.M.C.S., Bowange, T., Kariyawasam, I.U., and **Ratnayake, R.R.** (2022). An in vitro study of total carbohydrates, total proteins, and mineral contents of some Cyanobacteria isolated from selected saltmarsh and mangrove environments of Sri Lanka for nutrient-based applications. *University of Sri Jayewardenepura, 8th Symposium of the B.Sc. (Honours) Degree in Applied Sciences (UNI-IN ALLIANCE 2022)*

3. Paranavithana, T.M., Karunaratne, S.B., Gunathilake, S.K., Gnanavelrajah, N. **Ratnayake, R.R**. Soil carbon distribution and controlling factors in paddy-growing soils of Sri Lanka. *First National Research Symposium, National Research Council, Sri Lanka*

Molecular Microbiology & Human Diseases Research Programme

1. Saseevan, S., Bamunuarachchi, B.A.S.S., Jayalath, J.M.S.D., Nishanthi, W.A.A.G.N., and **Magana-Arachchi, D.N.** (2022). Diversity of midstream urinary bacteria in chronic kidney disease patients: A preliminary culture-based study. *4th Academic Session of Sri Lanka Society of Nephrology (SLSON)*.

2. Saseevan, S., Rajapakse, S., and **Magana-Arachchi, D.N.** (2022). Urinary annexin A3 and neutrophil gelatinase-associated lipocalin: Potential diagnostic biomarkers for diabetic nephropathy. *Sri Lanka Association for the Advancement of Science (SLAAS), Proceedings of the 78th Annual Session*.

3. Bandara, W.R.U.A., Madegedara, D., Karunaratne, W.A.I.P., and **Magana-Arachchi, D.N.** (2022). Biophysical characterization of PEG-based extracellular vesicles isolated from tuberculosis patients using Dynamic Light Scattering technique. *Sri Lanka Association for the Advancement of Science (SLAAS), Proceedings of the 78th Annual Session*.

4. Bandara, W.R.U.A., Madegedara, D., Karunaratne, W.A.I.P., and **Magana-Arachchi, D.N.** (2022). Raman spectroscopy characterization of serum-derived extracellular vesicles from tuberculosis patients. *University of Peradeniya, Proceedings of the Postgraduate Institute of Science Research Congress, Sri Lanka*.

5. Bandara, W.M.S.N., Wanigatunge, R.P., Rajapaksha, A.U., **Vithanage, M.,** and **Magana-Arachchi, D.N.** (2022). Assessment of human health risk of cylindrospermopsin by consuming *Oryza sativa* (rice) from selected CKDu endemic areas in Sri Lanka. *University of Kelaniya, International Conference on Applied and Pure Sciences (ICAPS 2022-Kelaniya)*.

6. Bandara, W.R.U.A., Madamarandawala, J.M.P.S., Madegedara, D., and **Magana-Arachchi, D.N.** (2022). Detection of RIF and INH resistance of *Mycobacterium tuberculosis* using TaqMan-based real-time PCR assays: A preliminary study. *Sri Lankan Society for Microbiology, 11th Annual Conference and Scientific Sessions of Sri Lankan Society for Microbiology (e-conference), Volume 10*.

7. Saseevan, S., Nishanthi, W.A.A.G.N., Rajapakse, S., and **Magana-Arachchi, D.N.** (2022). Upregulation of the olfactomedin 4 gene enables the disease progression in chronic kidney disease patients. *University of Sri Jayewardenepura, International Research Conference in Health Sciences 2022*.

8. Kandasamy, A., Hettithanthri, O., Bandara, W.M.S.N., **Magana-Arachchi, D.N.,** Wanigatunge, R., Jayasinghe, C., **Vithanage, M.,** and Rajapaksha, A.U. (2022). Food Mediated Exposure of Selected Hofmeister Ions in CKDu Affected Regions in Sri Lanka. *International Conference on Food Research Development and Applications 2022.*

Nutritional Biochemistry Research Programme

1. Chandraprabha, R.A.U., Jayawardana, B.C., Weththasinghe, P., **Liyanage, R.,** and Jayatilake J.A.M.S. (2022). Characterization of Five Selected Seaweed Species in Sri Lanka: Proximate Composition, Antimicrobial and Antioxidant Activities. *University of Peradeniya, Faculty of Agriculture Undergraduate Research Symposium*.

2. Gangani, W.G.R., Jayawardana, B.C., **Liyanage, R.,** Sewwandi, S.M.V.K., and Weththasinghe, P. (2022). Bioavailability of Antioxidants, Minerals, and Heavy Metals in Two Edible Seaweed Species: *Kappaphycus alvarezii* and *Caulerpa lentillifera. University of Peradeniya, Faculty of Agriculture Undergraduate Research Symposium.*

3. Wijesingha, W.A.D.E.I., Weththasinghe, P., Jayawardana, B.C., and **Liyanage, R.** (2022). Development of Omega-3 Enriched Feed Ingredient: Tailoring Fatty Acid Composition of Black Soldier Fly (*Hermetia illucens*) Larvae Using Fish Offal and Seaweeds. *University of Peradeniya, Faculty of Agriculture Undergraduate Research Symposium*.

4. Wickramasinghe, M.A., Kananke, T.C., Sewwandi, S.M.V.K., and **Liyanage, R.** (2022). Total Dietary fiber and Mineral Content in Some Selected Mushroom Varieties Grown in Sri Lanka. *Szeged, Hungary and International Conference on Science, Technology, Engineering and Economy ICOSTEE 2022*.

Plant Taxonomy & Conservation Research Programme

1. Jayasinghe, H.D., Ranasinghe, S.W., Kathriarachchi, H.S., and **Wijesundara, D.S.A.** (2022). Evaluation of conservation status of Sri Lankan Syzygium species. *University of Colombo, Annual research Symposium 2022*.

2. Premarthne, B.M., Karunarthne, S.C., Madawala, S., Wijayawardene, N.N., and **Wijesundara, D.S.A.** (2022). Edible mushrooms in Sri Lanka, a review. *Qujing Normal University, Qujing, Yunnan, China. International Conference on development and utilization of fungal resources. (ICDUFR)*.

3. Brahmanage, R.S., Wijayawardene, N.N., Nanayakkara, C.M., Muthumala, C.K., **Wijesundara, D.S.A.,** Dai, D. Q., and Ariyawansa, K.G.S.U. (2022). Investigation of Eucalyptus foliar pathogens in Sri Lanka. *Qujing Normal University, Qujing, Yunnan, China. International Conference on development and utilization of fungal resources. (ICDUFR)*.

4. **Wijesundara, D.S.A.** (2022). Distribution and Conservation of Endemic Flowering Plants in Sri Lanka. *26th International Forestry and Environment Symposium 2022 of the Department of Forestry and Environmental Science, University of Sri Jayewardenepura, Sri Lanka*

CHEMICAL AND PHYSICAL SCIENCE RESEARCH DIVISION

Condensed Matter Physics and Solid-State Chemistry research programme

1. Wengappuliarachchi, W.A.C.J., Thotawatthage, C.A., **Dissanayake, M.A.K.L.,** and **Senadeera, G.K.R.** (2022). PVA/(2-propanol) based bee-honey(core) and povidone-iodine (sheath) coaxial electrospun beads on string nanofibrous scaffold for controlled drug release. *The Open University of Sri Lanka, International Open University Research Sessions (iOURS 2022)*.

2. **Senadeera, G.K.R.,** Sandamali, W.I., **Dissanayake, M.A.K.L.,** Jaseetharan, T., Perera, V.P.S., Rajendra, J.C.N., Karthikeyan, N., and Wijenayaka, L.A. (2022). Effect of surface modification of photoanode on the performance of CdS quantum dot sensitized solar cells. *Shenzhen, China, Global Conference on Polymer and Composite Materials and International Conference on Graphene and Novel Nanomaterials (PCM & GNN 2022)*.

3. Bandara, K.M.N.S., Lakmal, A.A.I., Seneviratne, V.A., **Dissanayake, M.A.K.L.,** and B.S. Dassanayake (2022). Closed space sublimated CdS thin films for CdS/CdTe solar cells: effect of source temperature. *Faculty of Science, University of Jaffna, Sri Lanka, Vingnanam Research Conference -2022*.

4. Bandara, K.M.N.S., Lakmal, A.A.I., Seneviratne, V.A., **Dissanayake, M.A.K.L.,** and B.S. Dassanayake (2022). Closed space sublimated CdS thin films for CdS/CdTe solar cells: effect of CdS layer thickness. *Postgraduate Institute of Science, University of Peradeniya, Sri Lanka, Proceedings of the Postgraduate Institute of Science Research Congress*.

5. Jaseetharan, T., Sandamali, W.I., **Senadeera, G.K.R.,** Perera, V.P.S., Rajendra, J.C.N., Karthikeyan, N., Wijenayaka, L.A., and **Dissanayake, M.A.K.L.** (2022). Effect of Au plasmonic nanoparticles on short-circuit current density of Pbs quantum dot sensitized solar cells. *The Open University of Sri Lanka, International Open University Research Sessions (iOURS 2022)*.

6. Jaseetharan, T., Sandamali, W.I., **Senadeera, G.K.R.,** Perera, V.P.S., Rajendra, J.C.N., Karthikeyan, N., Wijenayaka, L.A., and **Dissanayake, M.A.K.L.** (2022). Enhancing the photocurrent by TiO_2 nanofibers in PbS quantum dot – sensitized solar cells. *The Open University of Sri Lanka, International Open University Research Sessions (iOURS 2022)*.

7. Kumari, J.M.K.W., **Senadeera, G.K.R.,** Sandamali, W.I., Perera, V.P.S., Rajendra, J.C.N., Karthikeyan, N., and **Dissanayake, M.A.K.L.** (2022). The concentration effect of PbS, CdS quantum dots on efficiency of co-sensitized TiO_2 photoanode based solar cells. *Faculty of Science, University of Jaffna, Sri Lanka, VINGNANAM Research Conference – 2022*.

8. Hettiarachchi, M.S.H., **Dissanayake, M.A.K.L., Senadeera, G.K.R.,** Jaseetharan, T., and Umair, K. (2022). Photovoltaic performance of dye-sensitized solar cells fabricated with cellulose acetate nanofiber-based gel electrolyte. *Postgraduate Institute of Science, University of Peradeniya, Sri Lanka, Proceedings of the Postgraduate Institute of Science Research Congress*.

Energy & Advanced Material Chemistry Research Programme

1. **Bandara, J.,** and Farhanaa, M.A. (2022). Improving the performance of Sb_2S_3 solar cells based on the effect of concentrations of Sb_2S_3 precursor. *South Eastern University of Sri Lanka, Proceedings of the 11th Annual Science Research Sessions, FAS*

Material Processing & Device Fabrication Research Programme

1. **Kumara, G.R.A.,** Keppetipola, N., Cojocaru, L., Toupance, T., **Tennakone, K.**, and Olivier, C. (2022). Sustainable, non-volatile super capacitors for photo-super capacitors applications. *European Materials Research Society (eMRS)*.

2. **Kumara, G.R.A.,** Keppetipola, N., Cojocaru, L., and Toupance, T. (2022). Photo-storage devices based on perovskite solar cells and super capacitors. *European Materials Research Society (eMRS)*.

3. Gardiarachchi, H.W., **Kumara, G.R.A., Tennakone, K.**, and Rajapaksa, R.M.G. (2022). Investigation of long-term stability of dye-sensitized solid-state solar cells sensitized with indoline dyes using cuprous iodide as the hole collector. *University f Sri Jayewardenepura, International Conference on Multidisciplinary Approaches (ICMA 2022)*.

4. Gardiarachchi, H.W., Medagedara, A.D.T., **Kumara, G.R.A.,** and **Tennakone, K**. (2022). Tin and zinc oxide composite dye-sensitized solar cells with an extremely thin liquid film as the redox electron mediator. *University of Peradeniya, Proceedings of the Postgraduate Institute of Science Research Congress*.

5. Medagedara, A.D.T., Gardiarachchi, H.W., **Kumara, G.R.A.,** Bandara, T.M.W.J., and **Tennakone, K**. (2022). Graphite powder-based layer for activated carbon super capacitor to enhance connectivity between activated carbon electrode and current collector. *University of Peradeniya, Proceedings of the Postgraduate Institute of Science Research Congress*.

Nanotechnology & Advanced Materials Research Programme

1. Ranaweera, R.M.L.H., Samarakoon, Y.M.I.B., Amaraweera, T.H.N.G., and **Wijayasinghe, H.W.M.A.C.** (2022). Investigating temperature dependence of lithium-ion diffusion through silicon (111) surface. *University of Kelaniya, International Postgraduate Research Conference 2022*.

2. Fernando W.T.R.S, Amaraweera, T.H.N.G., and **Wijayasinghe, H.W.M.A.C.** (2022). Structural analysis of $LiNi_{1/3}Mn_{1/3}Co_{1/3}O_2$, $Li_{0.96}Na_{0.04}Ni_{1/3}Mn_{1/3}Co_{1/3}O_2$ and $Li_{0.96}K_{0.04}Ni_{1/3}Mn_{1/3}Co_{1/3}O_2$ materials synthesized by Pechini method. *University of Kelaniya, International Postgraduate Research Conference 2022*.

3. Wimalasoma, S.M.T.D., Naranpanawa, H.M.H.D.K., Amaraweera, T.H.N.G., and **Wijayasinghe, H.W.M.A.C.** (2022). Development of expanded graphite from vein graphite via electrochemical exfoliation with sodium sulfate as an electrolyte. *University of Kelaniya, International Postgraduate Research Conference 2022*.

4. Fernando, W.T.R.S, Amaraweera, T.H.N.G., and **Wijayasinghe, H.W.M.A.C.** (2022). Tri-transition metal oxide cathode materials with cheaper alkaline metal additives for lithium-ion rechargeable batteries. *Global Academic Research Institute, Conference Proceedings of GARI Multidisciplinary Symposium 2022*.

5. Samarakoon, Y.M.I.B., Amaraweera, T.H.N.G., Ranatunga, R.J.K.U, and **Wijayasinghe, H.W.M.A.C.** (2022). Development of Sri Lankan vein quartz through purification and modification for the anode application of rechargeable lithium-ion batteries. *Global Academic Research Institute, Conference Proceedings of GARI Multidisciplinary Symposium 2022*.

6. Wimalasoma, S.M.T.D, Naranpanawa, H.M.H.D.K., Amaraweera, T.H.N.G., Young, S.M, and **Wijayasinghe, H.W.M.A.C.** (2022). Anodic electrochemical exfoliation of vein graphite in aqueous magnesium sulfate electrolyte. *Global Academic Research Institute, Conference Proceedings of GARI Multidisciplinary Symposium 2022.*

7. Naranpanawa, H.M.H.D.K., Fernando, W.T.R.S, Samarakoon, Y.M.I.B., Amaraweera, T.H.N.G., Balasooriya, N.W.B., and **Wijayasinghe, H.W.M.A.C.** (2022). Electrochemical performance of anode materials developed from Sri Lankan natural vein graphite in rechargeable lithium-ion batteries. *Conference Proceedings of GARI Multidisciplinary Symposium 2022*.

Natural Products Research Programme

1. Herath, N., Ifadha, F., Perera, D., **Adikaram, N.K.B.,** and **Jayasinghe, L.** (2022). Bioactivity of different crude extracts of *Salicornia brachiata*. *National Institute of Fundamental Studies, Sri Lanka, Proceedings of the Young Scientists' Conference on Multidisciplinary Sciences*.

2. Siriwardhene, K.A., **Marikkar, J.M.N., Jayasinghe, L.,** and **Adikaram, N.K.B.** (2022). Enzyme inhibitory, antioxidant and phytotoxic properties of *Pilea microphylla* (Urticaceae). *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Sciences*.

3. Bandara, H.M.S.K.H., Amarasinghe, N.R., **Adikaram, N.K.B., Jayasinghe, L.,** and Araya, H., Fujimoto. Y. (2022). Bioactive metabolite of endophytic fungus from *Manihot esculenta. National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Sciences*.

4. Tennakoon,T.M.K.P., Yakandawala, D., **Marikkar, J.M.N., Adikaram, N.K.B.,** and **Jayasinghe, L** (2022). Investigation of antioxidant, cytotoxic and phytotoxic activity of plant extracts from *Eichhornia crassipes. National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Sciences*.

5. Siriwardhane, U., **Adikaram, N.K.B.,** and **Jayasinghe, L.** (2022). Bioactivity studies of *Bridelia retusa* leaves extracts. *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Research*.

6. Kulathunge, T.D.A.D.K., **Marikkar, J.M.N., Adikaram, N.K.B.,** and **Jayasinghe, L.** (2022). Bioassays and enzyme inhibitory activities of *Alysicarpus vaginalis* and *Biophytum reinwardtii*. *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Research*.

7. Atapattu, N., **Adikaram, N.K.B., Jayasinghe, L.,** Araya, H., and Fujimoto, Y. (2022). Chemical constituents of endophytic fungus associated with *Citrus aurantiifolia* and their alpha-amylase inhibitory activity. *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Research*.

8. Herath, C., Rodrigo, S., **Adikaram, N.K.B.,** and **Jayasinghe, L.** (2022). Cytotoxicity and free radical scavenging capacity of aqueous fruit extract of *Dillenia retusa*. *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Research*.

9. Jayawardana, L., Samarakoon, K., Kumarathunge, T.S., Yakandawala, D., Wickramarathne, M.N., **Kumar, N.S., Adikaram, N.K.B., Jayasinghe, L.,** Araya, H., and Fujimoto, Y. (2022). Bioactive secondary metabolites from an endophytic fungus associated with *Gymnema sylvestre*. *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Research*.

10. Samarakoon, K., Heenkenda, T., Jayasooriya, C., Perera, E.A.I.A., Yakandawala, D., **Kumar, N.S., Adikaram, N.K.B., Jayasinghe, L.,** Araya, H., and Fujimoto, Y. (2022). Enzyme inhibitors from an endophytic fungus associated with *Myristica fragrans. National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Research*.

11. Kulathunge. T.D.A.D.K., **Marikkar, J.M.N., Adikaram, N.K.B.,** and **Jayasinghe, L.** (2022). Antifungal, antioxidant, cytotoxic, phytotoxic activities and alpha-amylase inhibition of *Mikania cordata* and *Plumeria obtusa*. *University of Peradeniya, Proceedings of the PGIS Research Congress (RESCON 2022)*.

12. Tennakoon.T.M.K.P., Yakandawala. D., **Marikkar, J.M.N., Adikaram, N.K.B.,** and **Jayasinghe, L.** (2022). Selected bioactivities of plant extracts from water lettuce, *Pistia stratiotes*. *University of Peradeniya, Proceedings of the PGIS Research Congress (RESCON 2022)*.

13. Samarakoon. K., Dissanayake. D., Amarasinghe. N.R., Yakandawala. D., **Kumar, N.S., Adikaram, N.K.B., Jayasinghe, L.,** Araya, H., and Fujimoto, Y. (2022). Secondary metabolites from an endophytic fungus associated with *Centella asiatica* and their phytotoxicity. *University of Peradeniya, Proceedings of the PGIS Research Congress (RESCON 2022)*.

14. Siriwardhane. U., Samarakoon. K, Perera. E.A.I.A., Yakandawala. D., **Kumar, N.S., Adikaram, N.K.B., Jayasinghe, L.,** Araya, H., and Fujimoto, Y. (2022). Enzyme inhibitory activity of compounds from an endophytic fungus associated with *Zingiber officinale*. *University of Peradeniya, Proceedings of the PGIS Research Congress (RESCON 2022)*.

15. Kalinga. J., Samarakoon. K, Perera. E.A.I.A., Yakandawala. D., **Kumar, N.S., Adikaram, N.K.B., Jayasinghe, L.,** Araya, H., and Fujimoto, Y. (2022). Enzyme inhibitory activity of two compounds isolated from an endophytic fungus in *Curcuma longa*. *University of Peradeniya, Proceedings of the PGIS Research Congress (RESCON 2022)*.

16. Liyanaarachchi, C.E., Napagoda, M.T., Witharana, S., and **Jayasinghe, L.** (2022). UV radiation screening potential of sunscreen formulations prepared from *Atalantia ceylanica* (Yaki-narang) extract. *10 th Young Scientists Forum Symposium, National Science and Technology Commission*

EARTH AND SPACE SCIENCES RESEARCH DIVISION

Earth Resources and Renewable Energy Research Programme

1. Munasinghe, S.A., Dharmapriya, P.L., Malaviarachchi, S., Kleinschrodt, R., Kumarasiri, S.A.T.D., Samaranayake, S.A., Spiering, B., Hellers, M., and **Subasinghe, N.D.** (2022). Petrogenesis of Dolerite Dykes in Sri Lankan basement. *National Institute of Fundamental Studies, Young Scientists' Conference Multidisciplinary Research (YSCMR)-2022*.

2. Thilakarathna, M.P., Abeysinghe A.M., Bandara, H.M.D.A.H., **Subasinghe, N.D.** (2022). A preliminary geomagnetic study of Wahawa-Padiyathalawa hot springs field. *National Institute of Fundamental Studies, Proceedings of the Young Scientists' Conference on Multidisciplinary Research-2022*.

3. Abeysinghe, A.M.A.M., Withanachchi, C.R., Thilakarathna, M.P., and **Subasinghe, N.D.** (2022). A Petrographic Study on Ancient Mortar from Wahalkada Anicut, Yan Oya, Sri Lanka. *Proceedings of the 38th Technical Session of Geological Society of Sri Lanka*.

ENVIRONMENT SCIENCE RESEARCH DIVISION

Environmental Science Research Programme

1. Perera, M.D.R., Bandara, W.M.A.T., **Weerasooriya, R.,** and **Jayarathna, L.** (2022). Synthesis and Characterization of Zinc Oxide (ZnO) Nanorods Confined in LTA Zeolite by Post-synthetic Hydrothermal Encapsulation Approach. *National Institute of Fundamental Studies, Young Scientists' Conference on Multidisciplinary Research-2022*.

2. De Silva, D.D.T., Igalavithana, A.D., and and **Jayarathna, L.** (2022). Unmodified, and iron and magnesium modified biochars derived from coconut shells for phosphate removal from water. *Faculty of Agriculture, University of Peradeniya, Agriculture Research Symposium 2021/22*.

3. Wedasingha, W.A.L.P., Bandara, W.M.A.T., Wijesinghe, M.B., **Jayarathna, L., Weerasooriya, R.,** and Perera, M.D.R. (2022). Synthesis of Graphene Oxide Quantum Dots Using Local Graphite. *University of Peradeniya, Postgraduate Institute of Science Research Congress, Sri Lanka*.

4. Nirmani, J.K.T., **Jayarathna, L.,** Igalavithana, A.D., and Amarasena, R.A.L.R. (2022). Hexavalent chromium removal from contaminated water by humic acid-coated metakaolin. *Faculty of Agriculture, University of Peradeniya, Agriculture Research Symposium 2021/22*.

5. Senevirathne, J.M.W.G.T.S., Bandara, W.M.A.T., **Weerasooriya, R.**, **Jayarathna, L.,** and Bandara, P.M.C.J. (2022). Synthesis of iron oxide (**γ**-Fe_2O_3) coated sand for adsorptive removal of arsenic from drinking water. *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Sciences*.

6. Amarasena, R.A.L.R., Bandara, W.M.A.T., **Weerasooriya, R.,** and **Jayarathna, L.** (2022). Sustainable synthesis and characterization of copper-modified zeolite Y (Kaolin-CuY) from purified Meetiyagoda kaolin. *National Institute of Fundamental Studies, Sri Lanka. Proceedings of the Young Scientists' Conference on Multidisciplinary Research*.

7. Bandara, P.M.C.J, Balasooriya, N.W.B, and **Weerasooriya, R.** (2022). Surface-coated sand for concurrent removal of fluoride and turbidity in drinking water. *University of Peradeniya, Postgraduate Institute of Science Research Congress, Sri Lanka*.

8. Perera, M.D.R., Amarasena, R.A.L.R., Bandara, W.M.A.T., **Weerasooriya, R.,** and **Jayarathna, L.** (2022). Structural and Morphological Investigation of Sodium Dodecyl Sulfate-Directed Linde Type-A (LTA) Zeolite Synthesized at Varying Crystallization Temperatures. *University of Peradeniya, Postgraduate Institute of Science Research Congress, Sri Lanka*.

9. Amarasena, R.A.L.R., Perera, M.D.R., Bandara, W.M.A.T., **Weerasooriya, R.,** and **Jayarathna, L.** (2022). Phenol Vapour Degradation with The Aid of Cation-Modified Zeolite-Y Catalysts in The Absence of Oxidizing Agents. *University of Peradeniya, Postgraduate Institute of Science Research Congress, Sri Lanka*

Plant & Environmental Sciences Research Programme

1. Kulangana, T, and **Iqbal, M.C.M.** (2022). Potential of aquatic macrophytes in phytoremediation of farm effluent. University of Peradeniya, Proceedings of the Postgraduate Institute of Science Research Congress, virtual

CONFERENCE PROCEEDINGS

Condensed Matter Physics and Solid-State Chemistry Research Programme

1. **Dissanayake, M. A. K. L.,** Ranasinghe, R. P. K. C. M. and Kumari, J. M. K. W. Variation in the Gender Composition in Tertiary Physics Education of Seven Sri Lankan Universities, *Proceeding of International Conference on Women in Physics* (ICWP), Australia, 2022.

Earth Resources and Renewable Energy Research Programme

1. **Subasinghe, N.D**. (2022). Renewable energy and biodiversity – friends or foes? *Proceedings of the second RUFFORD in country conference, Sri Lanka* – 2022, (p.14-16): Bio Conservation Society (BCSL).

Environmental Science Research Programme

1. Vithursan, T., Zammil, S.H.M., and **Weerasooriya, R.** (2022). Assessment of the Suitability of Rainwater as a Drinking Water. *International Water Conference 2022. 7th Annual Research Symposium*, (p.401 - 408), Ratmalana: National Water Supply and Drainage Board.

2. Kulasekera, K.M.L.D., **Weerasooriya, R.,** and Premachandra, T.N. (2022). Comparison of Performance Data of EDR and Nanofiltration Technologies for Groundwater Treatment. *International Water Conference 2022. 7th Annual Research Symposium*, (p.409 - 416), Ratmalana: National Water Supply and Drainage Board.

3. Amarasekera, A.E., and **Weerasooriya, R.** (2022). Water Safety Plan for a Groundwater System in the Village of Natiyagama. *International Water Conference 2022. 7th Annual Research Symposium*, (p.272 -278), Ratmalana: National Water Supply and Drainage Board.

4. Rajapaksha, A.G.M.P., **Weerasooriya, R.,** and Premachandra, T.N. (2022). Potential of Sri Lankan Graphite as an Electrode Material for Water Treatment: A Review. *International Water Conference 2022. 7th Annual Research Symposium*, (p.350 - 356), Ratmalana: National Water Supply and Drainage Board.

5. Halpegama, J.U., Herath, A.C., Rajapakse, R.M.G., Nanayakkara, K.G.N., and **Weerasooriya, R.** (2022). Electrochemical Investigation of Nitrate Reduction Mechanism Using Nano Zero Valent Iron. *International Water Conference 2022. 7th Annual Research Symposium*, (p.25 - 29), Ratmalana: National Water Supply & Drainage Board.

6. Dahanayake, M.H., and **Weerasooriya, R.** (2022). Improving Hydraulic Conductivity Determination of Aquifers by High Precision Pressure Driven Pumping System. *International Water Conference 2022. 7th Annual Research Symposium*, (p.296 - 301), Ratmalana: National Water Supply & Drainage Board.

7. Wedasingha, W.A.L.P., Bandara, W.M.A.T., Wijesinghe, M.B., **Jayarathna, L., Weerasooriya, R.,** Perera, M.D.R., and Gunawardana, E.G.W. (2022). Adsorption Studies on Modified Graphene Oxide Quantum Dots for Removal of Manganese. *International Water Conference 2022. 7th Annual Research Symposium*, (p.393-400), Ratmalana: National Water Supply & Drainage Board.

8. Bandara, P.M.C.J., Sewwandi, B.V.N., Kumarasinghe, A.R. Bandara, A., **Jayarathna, L.,** and **Weerasooriya, R.** (2022). Optimization of Fluoride Removal on Carbon Sphere Using 1-pK Surface Complexation Modelling. *International Water Conference 2022. 7th Annual Research Symposium*, (p.345-349), Ratmalana: National Water Supply & Drainage Board.

9. Senevirathne, J.M.W.G.T.S., Bandara, W.M.A.T., **Weerasooriya, R. Jayarathna, L.,** and Makehelwala, M. (2022). Synthesis of Iron Oxide (Γ-Fe_2O_3) Coated Sand for Adsorptive Removal of Arsenic (iii) from Drinking Water. *International Water Conference 2022. 7th Annual Research Symposium*, (p.372-378), Ratmalana: National Water Supply & Drainage Board.

10. Sumanasiri, W.R.S., Bandara, W.M.A.T., **Jayarathna, L.,** and Gunawardena, E.G.W. (2022). Removal of ammonium ions from wastewater by modified zeolite and use as slow ammonium-releasing fertilizer. *International Water Conference 2022. 7th Annual Research Symposium*, (p.357-363), Ratmalana: National Water Supply & Drainage Board.

11. Jayaweera, C.L., Senanayake, N., and **Weerasooriya, R.** (2022). Production of membrane treated saline water after plant operation from the rest state. *International Water Conference 2022. 7th Annual Research Symposium*, (p.324-329), Ratmalana: National Water Supply & Drainage Board.

BOOKS & BOOKS CHAPTERS

Books

1. Napagoda, M, and **Jayasinghe, L.** (eds). (2022). *Chemistry of Natural Products: Phytochemistry and Pharmacognosy of Medicinal Plants*. Berlin / Boston: Walter de Gruyter GmbH & Co KG.

2. Abeynayaka, A., Gamaralalage, P.J.D., Makehelwala, M., Weragoda, S.K., **Jayarathna, L.,** Pinnawala, M., Igalavithana, A.D., and Perera, C. (2022). *Training Needs Assessment Report (TNA): Towards Microplastic Monitoring and Evidence-Based Policy Measures in Sri Lanka*, (1). Sri Lanka: Institute for Global Environmental Strategies.

3. **Wijesundara, D.S.A.,** Gunawardena, A., Jayasinghe, H.D., Ukuwela, K., Lekamge, C., **Benjamin, S.P.,** and Wijayasekara, S. (2022). *NIFS Popham Arboretum, Sri Lanka's Premier Dry Zone Arboretum, Dambulla, Sri Lanka, A pictorial Guide*, (1). Sri Lanka: National Institute of Fundamental Studies, 2022.

Books Chapters

1. Sambavathas, S., Amarasinghe, N.R., **Jayasinghe, L.,** and Fujimoto, Y. (2022). Acetylcholinesterase inhibitory activity of spices and culinary herbs. *Chemistry of Natural Products: Phytochemistry and Pharmacognosy of Medicinal Plants* (p. 139). Berlin / Boston, Walter de Gruyter GmbH & Co KG.

2. Liyanaarachchi, C., Napagoda, M., Witharana, S., and **Jayasinghe, L.** (2022). Photoprotective potential in medicinal plants. *Chemistry of Natural Products: Phytochemistry and Pharmacognosy of Medicinal Plants* (p. 157-168). Berlin / Boston, Walter de Gruyter GmbH & Co KG.

3. **Adikaram, N.K.B., Jayasinghe, L.,** and Singh, D. (2022). Postharvest diseases of Pineapple and Banana. *Postharvest pathology of fruit and nut crops principles, concepts and management practices* (p. 503-536). St. Paul, MN 55121, United States of America, The American Phytopathological Society.

4. **Magana-Arachchi, D.N.,** and Wanigatunge, R.P. (2022). Co-occurrence of Geogenic, Microbial, and Anthropogenic Emerging Contaminants: Ecotoxicity and Relative Environmental Risks. *Impact of COVID-19 on Emerging Contaminants: One Health Framework for Risk Assessment and Remediation* (p. 123-152). Singapore, Springer Nature Singapore Pte Ltd.

5. Gunarathna, K.M.R.U., and **Marikkar, J.M.N.** (2022). Food authentication for food safety and nutritional security in Sri Lanka. *Environment Sustenance and Food Safety: Need for More Vibrant Policy Initiatives for Sri Lanka* (p. 85-101). Sri Lanka, NASTEC-YSF.

6. **Marikkar, J.M.N.** (2022). Adulteration in Oils and Fats Industry. *Recent Advances in Edible Fats and Oils Technology* (p. 463-480). Singapore, Springer Nature Singapore Pte Ltd.

7. **Marikkar, J.M.N.** and M.M. Musthafa (2022). Utilization of coconut byproducts for food security and sustainability in Sri Lanka. *The Food Security, Biodiversity, and Climate Nexus* (p. 251-266). Switzerland, Springer Nature Switzerland AG.

8. Jayasekara, S.K., and **Ratnayake, R.R.** (2022). The bioremediation of agricultural soils polluted with pesticides. *Microbial Syntrophy-mediated Eco-enterprising* (p. 15-39). , ELSEVIER.

9. Napagoda, M., and **Wijesundara, D.S.A.** (2022). Medicinal plants as sources of novel therapeutics: the history, present, and future. *Chemistry of Natural Products: Phytochemistry and Pharmacognosy of Medicinal Plants* (p. 1-18). Berlin, Boston, De Gruyter.

GRANTS

New Grants

1. **Benjamin, S.P.** received a Research Grant from Alexander von Humboldt Foundation on 2022-08-15 for research on the systematics of spiders. (Grant Value - 10,000,000 LKR)

2. **Benjamin, S.P.** received a Research Grant from European Commission, SYNTHESYS+: TA-Call4 (2022) on 2022-12-01 for the Study of Eugène Simon's Salticidae types with a special focus of species from Sri Lanka. (Grant Value - 1,600,000 LKR)

3. **Dissanayake, M.A.K.L.** received a Research Grant from Swedish Research Council, Sweden, on 2022-01-01 for the project of novel nano-structures for performance enhancement of low-cost solar cells. (Grant Value - 4,500,000 LKR)

4. Perera, D. (Principal investigator - Rajarata University of Sri Lanka), and **Jayasinghe, L.,** (Collaborator) received a Research Grant from The Asian Development Bank on 2022-04-01 for Saline farming: innovative agriculture to re-energize the economy and restore the ecosystem. (Grant Value - 2,512,250 LKR)

5. **Magana-Arachchi, D.N.,** and Madegedara, D. received a Research Grant from National Research Council of Sri Lanka on 2022-11-22 for Transcriptome analysis of mycobacteria in serum exosomes of latent tuberculosis patients for candidate biomarker identification. (Grant Value - 1,500,000 LKR)

6. **Ratnayake, R.** received a Research Grant from Access Engineering PLC, Colombo on 2022-09-01 for conducting research on industrial applications of cyanobacteria. (Grant Value - 1,055,100 LKR)

7. **Wijesundara, D.S.A.** received a Grant from the Ministry of Environment on 2022-06-01 for Development of NIFS Popham Arboretum. (Grant Value - 13,900,000 LKR)

Ongoing Grants

1. **Dissanayake, M.A.K.L.** (CI) received a Research Grant from the Ministry of Science, Technology and Research on 2017-01-01 for R&D towards manufacturing thin film solar cells at three universities (University of Peradeniya, University of Jaffna, University of Kelaniya) and NIFS. (Grant Value – 24,000,000 LKR)

2. **Senadeera, G.K.R., (PI)** Perera, V.P.S., Rajendra, J.C.N., Karthikeyan, N., Wijenayaka, L.A., and **Dissanayake, M.A.K.L.** (CI) received a Research Grant from Ministry of Higher Education, World Bank on 2019-09-01 for Engineering nano-materials for photovoltaic and environmental remedial applications. (Grant Value - 30,000,000 LKR)

3. **Dissanayake, M.A.K.L., (PI)** and **Senadeera, G.K.R.** (CI) received a Research Grant from National Science Foundation (NSF), Sri Lanka and the Pakistan Science Foundation (PSF), Pakistan, in 2018-01-01 for Development of carbon-based nanomaterial for counter electrodes in dye sensitized solar cells. (Grant Value - 3,100,000 LKR)

4. Perera, G.D.R.K., (PI) Wasana, H.M.S., (CI) Abeysundara, H.T.K., (CI) and **Jayarathna, L.** (CI) received a Research Grant from National Research Council on 2020-11-17 for Effects of environmental fluoride, hardness and heavy metal (Cd, Pb, As) exposures to the cow milk and their kidney function in CKDu endemic areas of Sri Lanka. (Grant Value - 4,987,500 LKR)

5. **Adikaram, N.K.B.,** (PI) **Jayasinghe, L., (CI)** and Yakandawala, D. (CI) received a Research Grant from National research council on 2021-06-01 for A study of postharvest disorders, pitting in guava, mango & papaya & husk scalding, pulp spot, chilling injury & vascular browning in avocado & their management. (Grant Value - 4,983,600 LKR)

6. Sumathipala, A., (PI) Jayawaradana, R., (CI) and **Liyanage, R.** (CI) received a Research Grant from Medical Research Council, UK, on 2020-12-01 for the Development of a Sri Lankan Specific Food Composition Database and Investigating the Dietary Intake and Nutritional Status of Sri Lankan Twin Cohort. (Grant Value - 15,000,000 LKR)

7. Saseevan, S. (supervised by Prof. **D.N. Magana-Arachchi**) received a Research Grant from the University of Jaffna on 2020-09-01 for the Identification of Urinary biomarkers for diabetic and Hypertensive Chronic Kidney Disease in Sri Lanka. (Grant Value - 1,600,000 LKR)

8. **Vithanage, M. (PI), Magana-Arachchi, D.N. (CI),** Wanigatunge, R., and Rajapaksha, A.U. received a Research Grant from National Science Foundation on 2019-04-26 for Enrichment mechanisms of CKDu-risk factors in groundwaters, their uptake pathways and potential remedies. (Grant Value - 19,209,155 LKR)

9. **Magana-Arachchi, D.N. (PI), Vithanage M. (CI)**, **Wijayasinghe H.W.M.A.C. (CI)**, and Dr. D. Madegedara (CI) received a Research Grant from Ministry of Science, Technology & Research, NRC on 2019-01-01 for Epidemiological study on asbestos related occupational health problems among asbestos industry workers in Sri Lanka. (Grant Value - 3,800,000 LKR)

10. **Magana-Arachchi, D.N.(PI) Vithanage, M., (CI)** and **Wickramasinghe, C. (CI)** received a Research Grant from The Bjornson and Prodan Foundation on 2018-01-01 for Balloon flights over central Sri Lanka to detect possible ingress of cometary microorganisms and particulate matter with the object of testing HoyleWickramasinghe theory of cometary panspermia. (Grant Value - 1,957,956 LKR)

11. **Magana-Arachchi, D.N.** and Dr. D. Madegedara (CI) received a Research Grant from National Science Foundation on 2018-04-20 for the Genetic characterization of drug resistant MTB isolates from Sri Lankan and Pakistani patients and their associations with transcriptomic biomarkers of TB. (Grant Value - 2,750,650 LKR)

12. **Marikkar, J.M.N., (PI)** and Yalegama, L.L.W.C. (CI) received a Research Grant from Sri Lanka Council for Agricultural Research Policy on 2021-03-01 for Physico-chemical, sensory and nutritional characteristics of coconut flour incorporated foods. (Grant Value - 2,235,000 LKR)

13. **Seneweera, S.** received a Research Grant from National Research Council on 2019-07-12 for the Efficacy and welfare of Aversive Geofencing Devices for managing the movements of Asian elephants. (Grant Value - 4,902,000

14. Dharmapriya, P.L., (PI) **Subasinghe, N.D., (CI)** Malaviarachchi, S., and Pitawala, H.M.T.G.A. received a Research Grant from National Research Council (NRC) on 2019-10-03 for Mineralogy and Petrology of Sri Lankan Rocks. (Grant Value - 4,000,000 LKR)

15. Dharamapriya., P.L, **Subasinghe, N.D.** received a Research Grant from NRC on 2019-09-01 for Research Project. (Grant Value - 2,500,000 LKR)

16. **Weerasooriya, R.** received a Research Grant from the Government of PR China on 2019-04-04 for Distinguished Professor (200,000 Yuan). (Grant Value - 10,704,828 LKR)

17. **Weerasooriya, R** (PI), Prof. A.R. Kumarasinghe, Prof. Ajith Herath, Dr. Atula Bandara, Prof Y. Wei, Prof. Xing Chen, Prof. S Jinadasa, Dr. S.K. Weragoda, Dr. J. Lutzenkirchen KIT, received a Research Grant from National Research Council on 2016-12-29 for A Sustainable Solution for Drinking Water Problems in Dry Zone Sri Lanka. (Grant Value - 49,900,000 LKR)

18. Witharana, S., (PI) and **Wijayasinghe, H.W.M.A.C.** (CI) received a Research Grant from SRC on 2021-07-14 for the Development of a commercial type lithium-ion battery using Sri Lankan graphite. (Grant Value - 5,000,000 LKR)

19. **Wijayasinghe, H.W.M.A.C.** (CI) received a Research Grant from World Bank on 2019-06-01 for the Development of Novel Electrolyte and Electrode Materials for Secondary Sodium-ion and Magnesium-ion Batteries. (Grant Value - 40,000,000 LKR)

20. **Wijayasinghe, H.W.M.A.C.,** and NIFS received a Research Grant from Mega grant from the General Treasury of Sri Lanka on 2018-01-01 for the Development of Sri Lankan graphite for rechargeable batteries. (Grant Value - 49,800,000 LKR)

21. **Wijesundara, D.S.A.** received a Research Grant from Green movement of Sri Lanka on 2021-08-21 for Fungi in Eucalyptus plantations: implications to forestry and biodiversity green movement of Sri Lanka. (Grant Value - 1,800,000 LKR)

RESEARCH COLLABORATIONS

Current Collaborations

Prof. S.P. Benjamin

1. Primate Biology research programme of NIFS collaborates with Indian Institute of Science, Bangalore, India, from 2018-10-03 to 2022-12-31.
   Summary: The phylogenetics of hybrids between the Sri Lankan primate species of langur (Semnopithecus priam and S. vetulus). Naturally occurring hybrids are of interest because of their role in the diversification of animals and the evolution of new species, the setting of limits to genetic compatibility between species, and in the extinction of species.
   Collaborators: Prof. P. Karanth, ***Prof. S.P. Benjamin,*** *and* ***Prof. W.P.J. Dittus***

2. Evolution, Ecology and Biodiversity research programme of NIFS collaborates with Zoological Research Museum Alexander Koenig (ZFMK) from 2018-11-01 to 2022-12-31.
   Summary: Biodiversity patterns of herbivore scarab chafers of Sri Lanka (Sericini: Coleoptera: Scarabaeidae). This project aims to understand the evolutionary processes underlying the exceptional beetle diversity of Indian subcontinent using a combination of phylogenetic, macroecological and biogeographical data. The phylogenetic patterns retrieved from DNA sequences will be particularly useful to investigate the dynamic biogeography of the region.
   Collaborators: ***Prof. S.P. Benjamin,*** *Dr. D. Ahrens, Dr. J. Eberle, and Ms. U.G.S.L. Ranasinghe*

Prof. M.A.K.L. Dissanayake

1. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with The Open University of Sri Lanka from 2019-09-01 to 2024-01-01.
   Summary: Engineering nano-materials for photovoltaic and environmental remedial applications under OUSL-AHEAD grant.
   Collaborators: ***Prof. G.K.R. Senadeera,*** *Prof. V.P.S. Perera, Prof. J.C.N. Rajendra, Dr. N. Karthikeyan, Dr. L.A. Wijenayaka, and* ***Prof. M.A.K.L. Dissanayake***

2. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with the Department of Physics, University of Jaffna, Sri Lanka, from 2018-01-01 to 2024-01-01.
   Summary: Dye sensitized solar cells and gel polymer electrolytes for rechargeable batteries.
   Collaborators: Prof. K. Vignarooban, and ***Prof. M.A.K.L. Dissanayake***

3. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with the South Eastern University of Sri Lanka from 2020-01-01 to 2024-01-01.
   Summary: Dye sensitized solar cells, quantum dots- sensitized and plasmonic solar cells and IR detector.
   Collaborators: Dr. T. Jaseetharan, and ***Prof. M.A.K.L. Dissanayake***

4. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with Chalmers University (Sweden) from 2019-01-01 to 2024-01-01.
   Summary: Collaborative research on Dye sensitized solar cells and Quantam dot sensitized solar cells.
   Collaborators: Prof. B-E. Mellander, and ***Prof. M.A.K.L. Dissanayake***

5. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with Queensland University of Technology (Australia) from 2018-07-01 to 2024-01-01.
   Summary: Use of non-thermal atmospheric pressure plasma surface treatment for the application of dye sensitized solar cells.
   Collaborators: Dr. A.M.J.S. Weerasinghe, and ***Prof. M.A.K.L. Dissanayake***

6. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with Sabaragamuwa University of Sri Lanka from 2018-01-01 to 2024-01-01.
   Summary: Applications of TiO_2.
   Collaborators: Dr. H.N.M. Sarangika, and ***Prof. M.A.K.L. Dissanayake***

7. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with the Department of Physics, University of Peradeniya, from 2017-01-01 to 2024-01-01.
   Summary: Dye sensitized solar cells and polymer electrolytes.
   Collaborators: Dr. B. Dassanayake, and ***Prof. M.A.K.L. Dissanayake***

8. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with the Department of Physics, University of Peradeniya, from 2018-01-01 to 2024-01-01.
   Summary: Dye sensitized solar cells.
   Collaborators: Dr. T.M.W.J. Bandara, and ***Prof. M.A.K.L. Dissanayake***

9. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with Universities, Peradeniya, Kelaniya, Jaffna and the University of Ruhuna from 2017-01-01 to 2024-01-01.
   Summary: Collaborative national EduTraining project towards R&D and training of personnel competent in thin film solar cell prototype manufacturing maintaining. NIFS is the principal coordinator. Work was started in 2017 and continuing.
   Collaborators: ***Prof. M.A.K.L. Dissanayake***

10. Condensed Matter Physics and Solid-State Chemistry research programme of NIFS collaborates with University of Agriculture, Pakistan from 2018-01-01 to 2024-01-01.
    Summary: A joint research grant under the NSF, Sri Lanka and Pakistan Science Foundation (PSF) for collaborative research on Graphite/Graphene based counter electrodes for dye sensitized solar cells.
    Collaborators: ***Prof. M.A.K.L. Dissanayake***

Prof. W.P.J. Dittus

1. Primate Biology research programme of NIFS collaborates with Indian Institute of Science, National Institute of Fundamental Studies (Sri Lanka) from 2018-10-03 to 2024-06-30.
   Summary: The phylogenetics of hybrids between the Sri Lankan primate species of langur (*Semnopithecus priam* and *S. vetulus*). Naturally occurring hybrids are of interest because of their role in the diversification of animals and the evolution of new species, the setting of limits to genetic compatibility between species, and in the extinction of species.
   Collaborators: ***Prof. W.P.J. Dittus,*** *Prof. P. Karanth, and* ***Prof. S. P. Benjamin***

Prof. G.R.A. Kumara

1. Material Processing and Device Fabrication research programme of NIFS collaborates with University of Jaffna from 2017-01-02 to 2023-01-01.
   Summary: Development of perovskite and dye-sensitized solar cells.
   Collaborators: Prof. P. Ravirajan, and ***Prof. G.R.A. Kumara***

2. Material Processing and Device Fabrication research programme of NIFS collaborates with Georgia State University, USA from 2017-01-02 to 2023-01-01.
   Summary: Development of Supercapacitors, dye-sensitized solar cells and perovskite solar cells.
   Collaborators: ***Prof. K. Tennakone,*** *and* ***Prof. G.R.A. Kumara***

3. Material Processing and Device Fabrication research programme of NIFS collaborates with Shizuoka University, Japan from 2017-01-02 to 2023-01-02.
   Summary: Development of dye-sensitized solar cells and perovskite solar cells.
   Collaborators: Prof. A. Konno, and ***Prof. G.R.A. Kumara***

4. Material Processing and Device Fabrication research programme of NIFS collaborates with Western Norway University from 2017-01-02 to 2023-01-02.
   Summary: Development of Perovskite and dye-sensitized solar cells.
   Collaborators: Prof. Dhayalan Velauthapillai, and ***Prof. G.R.A. Kumara***

4. Material Processing and Device Fabrication research programme of NIFS collaborates with University of Peradeniya from 2017-01-02 to 2023-01-02.
   Summary: Exfoliation and purification of Sri Lankan graphite.
   Collaborators: Prof H.M.T.G.A. Pitawala, and ***Prof. G.R.A. Kumara***

5. Material Processing and Device Fabrication research programme of NIFS collaborates with University of Peradeniya from 2017-01-02 to 2023-01-01.
   Summary: Improvement of all types of dye-sensitized solar cells using low-cost materials and development of highly efficient and environmentally stable perovskite solar cells.
   Collaborators: Prof. R.M.G. Rajapakse, and ***Prof. G.R.A. Kumara***

Prof. L. Jayasinghe

1. Natural Products research programme of NIFS collaborates with Faculty of Dental Sciences, University of Peradeniya from 2021-01-06 to 2025-01-06.
   Summary: Extraction and identification of bioactive secondary metabolites from plants.
   Collaborators: ***Prof. L. Jayasinghe,*** and Prof. R. Jayasinghe

2. Natural Products research programme of NIFS collaborates with University of Peradeniya, Faculty of Medicine from 2012-01-01 to 2024-01-01.
   Summary: Study of plant metabolites.
   Collaborators: Dr. Irushika Fernando, and ***Prof. L. Jayasinghe***

3. Natural Products research programme of NIFS collaborates with University of Ruhuna, Faculty of Medicine from 2012-01-01 to 2024-01-01.
   Summary: Study of plant metabolites.
   Collaborators: Dr. M.T. Napagoda, and ***Prof. L. Jayasinghe***

4. Natural Products research programme of NIFS collaborates with University of Peradeniya, Faculty of Allied Health Science from 2015-01-01 to 2024-01-01.
   Summary: Study of plant and fungal metabolites.
   Collaborators: Dr. N.R. Amarasinghe, and ***Prof. L. Jayasinghe***

Dr. R. Liyanage

1. The Nutritional Biochemistry research programme of NIFS collaborates with the University of Peradeniya from 2019-12-31 to 2022-12-31.
   Summary: Artocarpus nobilis Thwaites (Ceylon breadfruit) is an under-utilized, native plant in Sri Lanka that produces seeds with a unique taste. This study investigated the nutritional properties, antioxidant potential, and anti-diabetic effects of raw and processed (roasted, boiled, and microwaved) A. nobilis seeds in comparison with some popular nuts.
   Collaborators: ***Prof. D.S.A. Wijesundara,*** *Prof.Ramiah Sivakanesan, Prof.Neil Alles,* ***Prof. L. Jayasinghe,*** *Prof.Barana Jayawardana, and* ***Dr. R. Liyanage****.*

2. The Nutritional Biochemistry research programme of NIFS collaborates with Kings College London/University of Colombo/ Institute of Research and development from 2020-12-01 to 2023-12-31.
   Summary: Nowadays, twin studies in nutritional research have opened a wide range of research opportunities. Twin studies have demonstrated that genetic makeup plays a significant role in many dietary phenotypes (energy and nutrient intakes, dietary patterns, and consumption of specific food types) and health status. This is the first study to identify the dietary habits of a Sri Lankan cohort. The findings of this study would help to identify suitable dietary interventions to prevent and control non-communicable diseases among the population in Sri Lanka.
   Collaborators: Dr. Helena Zavos, Prof. Fruhling Vesta Rijsdijk, Prof. A. Sumathipala, Prof.Ranil Jayawardana, and ***Dr. R. Liyanage***

3. The Nutritional Biochemistry research programme of NIFS collaborates with Horticultural Crops Research and Development Institute (HORDI) from 2022-02-12 to 2024-02-15.
   Summary: There are a number of underutilized yams in Sri Lanka with the potential of contributing to improving food security in Sri Lanka. This study investigates the nutritional and functional properties of some selected yams with the aim of promoting their consumption among people to improve their nutritional status.
   Collaborators: Mrs.Theja Nanayakkara, ***Dr. R. Liyanage****.*

4. The Nutritional Biochemistry research programme of NIFS collaborates with University of Sri Jayawardhanapura from 2022-01-12 to 2024-03-31.
   Summary: Dietary carbohydrates play a significant role in developing type 2 diabetes and its associated health complications. Systematic reviews and meta-analysis revealed that the type of carbohydrate, their quality, and their composition critically influenced health. This research is designed to compare the physicochemical and functional properties of commonly available dietary carbohydrate sources in Sri Lanka.
   Collaborators: Dr. Chatuni Jayathilake, and ***Dr. R. Liyanage****.*

Prof. D.N. Magana-Arachchi

1. Molecular Microbiology and Human Diseases research programme of NIFS collaborates with the Molecular Biology/ Biochemistry Department, National University of Medical Sciences, Rawalpindi, Pakistan, from 2018-04-20 to 2022-04-24.
   Summary: The study focused on the drug-resistant tuberculosis (MDR-TB), the condition at which the TB bacterium becomes resistant to the two most powerful first-line drugs: rifampin and isoniazid.
   Collaborators: Prof. S. Younis, and ***Prof. D.N. Magana-Arachchi***

2. Molecular Microbiology and Human Diseases research programme of NIFS collaborates with respiratory disease treatment unit, Teaching hospital, Kandy from 2018-04-20 to 2022-12-31.
   Summary: Information generated on local tuberculosis epidemiology, drug resistance patterns and differential host immune responses, would help in establishing better procedures for controlling drug resistant tuberculosis, improving patient status and reducing overall health care cost.
   Collaborators: Dr. R.M.D. Madegedara, and ***Prof. D.N. Magana-Arachchi***

Prof. J.M.N. Marikkar

2. Food Chemistry research programme of NIFS collaborates with Department of Food & Drug, University of Parma, Italy from 2018-03-08 to 2022-12-31.
   Summary: Food chemistry project of NIFS has been working with Dr. Emma Chiavaro of the department of food & drugs at the University of Parma, Italy, on a mutual understanding basis to prepare grant proposals for research studies and publish research results in international peer reviewed journals.
   *Collaborators: Prof. E. Chiavaro, and **Prof. J.M.N. Marikkar***

2. Food Chemistry research programme of NIFS collaborates with Dr. Chandi Yalegama, Coconut Research Institute, Lunuwila from 2018-06-08 to 2023-05-08.
   Summary: Food chemistry project of NIFS signed an MOU with Coconut Research Institute (CRI), Lunuwila in early August, 2018 to undertake a study on the anti-diabetic and anti-oxidative potentials of coconut testa; a byproduct generated by desiccated coconut processing industries in Sri Lanka. Under this MOU, CRI agreed to work with the food chemistry research group of the NIFS by providing samples of coconut varieties, laboratory facilities for chemical analysis.
   *Collaborators: **Prof. J.M.N. Marikkar** and Dr. Chandi Yalegama*

Prof. R.R. Rathnayake

1. Microbiology and Soil Ecosystems research programme of NIFS collaborates with Department of Animal, Plant and Soil Sciences, La Trobe University, Australia from 2019-03-19 to 2023-04-10.
   Summary: Investigation of genetic diversity of cyanobacteria in different water bodies of Sri Lanka with their taxonomical identification, nutrient profiling and toxin analysis.
   *Collaborators: Dr. S. Abeynayake, and **Prof. R.R. Rathnayake***

2. Microbiology and Soil Ecosystems research programme of NIFS collaborates with Natural Resource Management Center, Peradeniya from 2018-07-02 to 2022-02-15.
   Summary: Soil Carbon Sequestration and Nutrients in Mangrove and Saltmarsh Ecosystems of the Gulf of Mannar Region of Sri Lanka.
   *Collaborators: Dr. H.K. Kadupitiya, and **Prof. R.R. Rathnayake***

3. Microbiology and Soil Ecosystems research programme of NIFS collaborates with Survey Department of Sri Lanka from 2017-12-05 to 2022-10-05.
   Summary: Development of baseline soil information system for soil C and other nutrients for paddy growing soils in Sri Lanka.
   *Collaborators: Mr. A. Wijaewardana, and **Prof. R.R. Rathnayake***

4. Microbiology and Soil Ecosystems research programme of NIFS collaborates with Sabaragamuwa University of Sri Lanka from 2017-12-05 to 2022-10-05.
   Summary: Development of baseline soil information system for soil C and other nutrients for paddy growing soils in Sri Lanka.
   *Collaborators: Prof. S.K. Gunathilaka, and **Prof. R.R. Rathnayake***

5. Microbiology and Soil Ecosystems research programme of NIFS collaborates with Department of Botany, University of Peradeniya from 2018-07-02 to 2022-02-05.
   Summary: Soil Carbon Sequestration and Nutrients in Mangrove and Saltmarsh Ecosystems of the Gulf of Mannar Region of Sri Lanka.
   *Collaborators: Prof. G.A.D. Perera, and **Prof. R.R. Rathnayake***

6. Microbiology and Soil Ecosystems research programme of NIFS collaborates with CSIRO, Agriculture and Food, Canberra, Australia from 2017-12-18 to 2022-08-05.
   Summary: Regarding the expertise in agricultural modelling.
   *Collaborators: Dr. S. B. Karanaratne, and **Prof. R.R. Rathnayake***

8. Microbiology and Soil Ecosystems research programme of NIFS collaborates with Faculty of Agriculture, University of Ruhuna from 2018-06-15 to 2023-03-05.
   Summary: Investigation of genetic diversity of cyanobacteria in different water bodies of Sri Lanka with their taxonomical identification, nutrient profiling and toxin analysis.
   Collaborators: Prof. K.L.W. Kumara, and ***Prof. R.R. Rathnayake***

9. Microbiology and Soil Ecosystems research programme of NIFS collaborates with School of Environment Sciences, University of Guelph, Canada. from 2016-11-15 to 2024-11-15.
   Summary: Regarding the expertise in GIS based mapping.
   Collaborators: Dr. A. Biswas, and ***Prof. R.R. Rathnayake***

Prof. S. Seneweera

1. Plant Stress Biology & Molecular Genetics research programme of NIFS collaborates with University of Colombo, University of Peradeniya, University of Southern Queensland, and Department of National Zoological Garden from 2019-02-26 to 2022-09-22.
   Summary: Anthropogenic activities such as urbanization and agricultural expansion has affected wildlife populations in many different ways. While in some cases species tend to adapt to the changing environments and subsequently thrive, in other instances it has led to loss of species.
   Collaborators: ***Prof. S. Seneweera,*** *Prof. D. Weerakoon, Prof. A. Dangolla, and Dr. B. Allen*

2. Plant Stress Biology & Molecular Genetics research programme of NIFS collaborates with University of Peradeniya, Plant Genetic Resources Center from 2020-01-20 to 2024-01-20.
   Summary: Nitrogen (N) is the element that plants require in the highest quantity. Availability of N is one of the keys limiting factors in crop productivity in agricultural systems. We are aiming to develop an environmentally friendly, cost effective, biodegradable, controlled release nano fertilizer system with high nitrogen use efficiency.
   Collaborators: ***Prof. S. Seneweera,*** *Prof. D.M.D. Yakandawala, and Dr. L. Jayarathne*

3. Plant Stress Biology & Molecular Genetics research programme of NIFS collaborates with La Trobe University from 2020-01-01 to 2023-12-12.
   Summary: Iron is an important micronutrient essential for mental and physical development in humans. This project will make a substantial contribution to the understanding of the physiological mechanism of iron loading into rice grains and will contribute to human iron nutrition.
   Collaborators: ***Prof. S. Seneweera,*** *and Gendall, A.*

Prof. N.D. Subasinghe

1. Earth Resources and Renewable Energy research programme of NIFS collaborates with Department of Geology, Naturalis Biodiversity Center, Darwinweg 2 – 2333 CR Leiden, Netherlands, Department of Earth Sciences, University of Utrecht, 3584 CB Utrecht, Netherlands from 2021-01-01 to 2023-03-11.
   Summary: The project attempts to constrain the P–T evolution of ultrahigh-temperature (UHT) granulites using textures coupled with multiple thermobarometric approaches. Sapphirine-bearing granulites were collected from a quarry in the central part of the Highland Complex of Sri Lanka.
   Collaborators: L. M. Kriegsman, and ***Prof. N.D. Subasinghe***

2. Earth Resources and Renewable Energy research programme of NIFS collaborates with National Ocean Affairs Committee, Ministry of Foreign Relations, Sri Lanka from 2016-01-01 to 2025-12-12.
   Summary: Conduct geothermal explorations applying geological, geophysical and geochemical techniques in the geothermal areas of Sri Lanka.
   Collaborators: Ms. S.A. Samaranayake.

3. Earth Resources and Renewable Energy research programme of NIFS collaborates with Geological Survey and Mines Bureau, Sri Lanka from 2016-02-01 to 2025-12-01.
   Summary: Conducting geophysical surveys on geothermal areas in Sri Lanka.
   Collaborators: Mr. Nalin de Silva., ***Prof. N.D. Subasinghe***.

4. Earth Resources and Renewable Energy research programme of NIFS collaborates with Rajarata University, Mihintale from 2016-01-01 to 2025-12-01.
   Summary: Conduct geothermal explorations applying geological, geophysical and geochemical techniques in the geothermal areas of Sri Lanka.
   Collaborators: Dr. U. Dahanayake, Dr. H. O. Wijewardane, ***Prof. N.D. Subasinghe***.

5. Earth Resources and Renewable Energy research programme of NIFS collaborates with Dept. of Geology, University of Peradeniya from 2016-01-01 to 2025-01-01.
   Summary: Conduct research on petrology and mineralogy of Sri Lankan rocks.
   Collaborators: ***Prof. N.D. Subasinghe***.

6. Earth Resources and Renewable Energy research programme of NIFS collaborates with Dept. of Physics, University of Peradeniya from 2018-02-01 to 2025-12-01.
   Summary: Conduct research on Time-dependent finite-difference model for transient and steady-state analysis of thermoelectric bulk materials.
   Collaborators: Dr. B.M.K. Pemasiri., ***Prof. N.D. Subasinghe***.

7. Earth Resources and Renewable Energy research programme of NIFS collaborates with Dept. of Physics, University of Peradeniya from 2019-01-01 to 2025-02-01.
   Summary: Conduct thermoelectric researches by applying various techniques with different materials.
   Collaborators: Dr. L.K. Narangammana., ***Prof. N.D. Subasinghe***.

8. Earth Resources and Renewable Energy research programme of NIFS collaborates with Dept. of Physics, University of Peradeniya from 2019-01-01 to 2024-12-01.
   Summary: Conduct thermoelectric researches by applying various techniques with different materials.
   Collaborators: Prof. T.M.W.J. Bandara, ***Prof. N.D. Subasinghe***.

9. Earth Resources and Renewable Energy research programme of NIFS collaborates with Department of Geology, University of Peradeniya from 2016-01-01 to 2025-12-01.
   Summary: Carrying out various petrological and structural geological studies with the participation of undergraduate and postgraduate students.
   Collaborators: S.P.K. Malaviarachchi, ***Prof. N.D. Subasinghe***.

Prof. R. Weerasooriya

1. Environmental Science Research Program research programme of NIFS collaborates with Wuhan New fibre Optics Electron Co., Ltd, PR China from 2018-01-01 to 2024-01-01.
   Summary: interfacing water treatment plants.
   Collaborators: ***Prof. R. Weerasooriya*** *and Interface industry group*

2. Environmental Science Research Program research programme of NIFS collaborates with Chung Hsing University, Taiwan from 2019-01-01 to 2023-01-01.
   Summary: surface spectroscopy of GO.
   Collaborators: ***Prof. R. Weerasooriya*** *and Jiann-Yeu Chen*

3. Environmental Science Research Program research programme of NIFS collaborates with University of Manitoba, Canada from 2020-01-01 to 2023-01-01.
   Summary: electrochemistry of grapthite.
   Collaborators: ***Prof. R. Weerasooriya*** *and C. Kuss*

4. Environmental Science Research Program research programme of NIFS collaborates with University of Peradeniya from 2010-01-01 to 2024-01-01.
   Summary: Vibration spectroscopy of surfaces.
   Collaborators: ***Prof. R. Weerasooriya*** *and Dr. Atula Bandara*

5. Environmental Science Research Program research programme of NIFS collaborates with University of Jayawardhanapura from 2017-01-01 to 2023-01-01.
   Summary: Graphite based membranes.
   Collaborators: ***Prof. R. Weerasooriya*** *and Prof. A.R. Kumarasinghe*

6. Environmental Science Research Program research programme of NIFS collaborates with University of Winnipeg, Canada, University of Peradeniya from 2020-01-01 to 2023-01-01.
   Summary: Remediation of V contaminated soils.
   Collaborators: ***Prof. R. Weerasooriya*** *and Prof. S. Indrarathne*

7. Environmental Science Research Program research programme of NIFS collaborates with Rajarata University and Chinese Academy of Sciences from 2019-01-01 to 2023-01-01.
   Summary: Electrochemical water treatment.
   Collaborators: ***Prof. R. Weerasooriya****, Dr. B. Tian and Prof. Ajith Herath*

8. Environmental Science Research Program research programme of NIFS collaborates with National Water Supply Drainage Board, Kandy from 2017-01-01 to 2024-01-01.
   Summary: Membrane use for water desalination. China Sir Lanka collaboration.
   Collaborators: ***Prof. R. Weerasooriya*** *and Dr. S. K Weragoda*

9. Environmental Science Research Program research programme of NIFS collaborates with Chinese Academy of Sciences China from 2017-01-01 to 2024-10-01.
   Summary: Membrane development for drinking water desalination.
   Collaborators: ***Prof. R. Weerasooriya*** *and Prof. Y. Wei*

10. Environmental Science Research Program research programme of NIFS collaborates with Hefei University of Technology, PR China from 2019-01-01 to 2023-01-01.
    Summary: In situ electrochemical sensors for chemical speciation.
    Collaborators: ***Prof. R. Weerasooriya*** *and Prof. Xing Chen*

11. Environmental Science Research Program research programme of NIFS collaborates with University of Peradeniya from 2018-01-01 to 2023-01-01.
    Summary: Groundwater flow modeling.
    Collaborators: **Prof. R. Weerasooriya** and Prof. P. Wijekoon.

12. Environmental Science Research Program research programme of NIFS collaborates with Ruhr University Germany from 2020-01-12 to 2022-01-01.
    Summary: Groundwater flow modeling in fractured zones.
    Collaborators: **Prof. R. Weerasooriya** and Dr. Thomas Heinz.

13. Environmental Science Research Program research programme of NIFS collaborates with Karlsruhe Institute of Technology Germany from 2017-01-10 to 2022-02-04.
    Summary: Development of surface complexation models for clay surfaces 2017 to to-date.
    Collaborators: ***Prof. R. Weerasooriya*** *abd Dr. J. Lutzerkirchen*

14. Environmental Science Research Program research programme of NIFS collaborates with University of Peradeniya from 2021-01-01 to 2022-01-01.
    Summary: geospatial modelling of water quality data.
    Collaborators: ***Prof. R. Weerasooriya*** *and P. Wijekoon*

Dr. H.W.M.A.C. Wijayasinghe

1. Nanotechnology and Advanced Materials research programme of NIFS collaborates with Department of Earth Sciences, Uva Wellassa University, Badulla from 2018-01-01 to 2022-12-31.
   Summary: Development of Sri Lankan graphite for advanced technological applications.
   Collaborators: ***Dr. H.W.M.A.C. Wijayasinghe,*** *Dr. A.N.B. Attanayake, and Dr. T.H.N.G. Amaraweera*

2. Nanotechnology and Advanced Materials research programme of NIFS collaborates with Department of Physics, University of Jaffna from 2019-06-01 to 2023-05-01.
   Summary: Development of Novel Electrolyte and Electrode Materials for Secondary Sodium-ion and Magnesium-ion Batteries.
   Collaborators: ***Dr. H.W.M.A.C. Wijayasinghe,*** *Dr. K. Vignarooban, and Dr. G. Sashikesh*

3. Nanotechnology and Advanced Materials research programme of NIFS collaborates with Department of Mechanical Engineering, University of Moratuwa from 2021-07-01 to 2024-06-30.
   Summary: Development of a commercial type lithium-ion battery using Sri Lankan graphite.
   Collaborators: ***Dr. H.W.M.A.C. Wijayasinghe,*** *Dr. S. Vitharana, Dr. L. Subasinghe, and Dr. T.H.N.G. Amaraweera*

4. Nanotechnology and Advanced Materials research programme of NIFS collaborates with Department of Applied Earth Sciences, Uva Wellassa University, Badulla from 2018-01-01 to 2022-12-31.
   Summary: Development of Sri Lankan graphite for advanced technological applications.
   Collaborators: ***Dr. H.W.M.A.C. Wijayasinghe,*** *Dr. A.N.B. Attanayake, and Dr. T.H.N.G. Amaraweera*

5. Nanotechnology and Advanced Materials research programme of NIFS collaborates with Department of Physics, University of Jaffna from 2019-06-01 to 2023-05-03.
   Summary: Development of Novel Electrolyte and Electrode Materials for Secondary Sodium-ion and Magnesium-ion Batteries.
   Collaborators: ***Dr. H.W.M.A.C. Wijayasinghe,*** *Dr. K. Vignarooban, and Dr. G. Sashikesh*

6. Nanotechnology and Advanced Materials research programme of NIFS collaborates with Department of Mechanical Engineering, University of Moratuwa from 2021-07-01 to 2024-06-30.
   Summary: Development of a commercial type lithium-ion battery using Sri Lankan graphite.
   Collaborators: ***Dr. H.W.M.A.C. Wijayasinghe,*** *Dr. S. Witharana, Dr. L. Subasinghe, and Dr. T.H.N.G. Amaraweera*

Prof. D.S.A. Wijesundara

1. Plant Taxonomy and Conservation research programme of NIFS collaborates with National Herbarium Royal Botanic Gardens, Peradeniya from 2016-03-01 to 2026-12-31.
   Summary: With the national Herbarium many taxonomic studies and conservation documentation activities including the preparation of national red List are conducted.
   Collaborators: Dr. Subhani Ranasinghe, and ***Prof. D.S.A. Wijesundara***

2. Plant Taxonomy and Conservation research programme of NIFS collaborates with Qujing Normal University, Qujing, Yunnan, P.R. China from 2019-08-01 to 2026-12-31.
   Summary: With this collaboration several studies on fungi are conducted. One graduate student is working on fungi in Eucalyptus plantations in Sri Lanka.
   Collaborators: Prof. Nalin Wijayawardena, and ***Prof. D.S.A. Wijesundara***

3. Plant Taxonomy and Conservation research programme of NIFS collaborates with Agricultural Biotechnology Centre University of Peradeniya from 2018-08-01 to 2025-12-31.
   Summary: Several research activities are conducted through this collaboration. Main projects include research on Sri Lankan Cinnamon and taxonomic studies of genus *Strobilanthes* (nelu).
   Collaborators: Prof. Pradeepa Bandaranayake, and ***Prof. D.S.A. Wijesundara***

4. Plant Taxonomy and Conservation research programme of NIFS collaborates with Faculty of Agricultural Sciences, Sabaragamuwa University of Sri Lanka, Belihuloya, from 2021-06-01 to 2024-12-31.
   Summary: Underutilized fruit madan (*Syzygium cuminii)* Sri Lanka is studied jointly.
   Collaborators: Prof. Kapila Dissanayake, and ***Prof. D.S.A. Wijesundara***

5. Plant Taxonomy and Conservation research programme of NIFS collaborates with Natural History Museum United Kingdom from 2017-05-01 to 2026-12-31.
   Summary: Taxonomy of Sri Lankan lichens is studied with the collaboration of the natural history museum, UK. There is a graduate student jointly supervised.
   Collaborators: Dr. Gothamie Weerakon, and ***Prof. D.S.A. Wijesundara***

6. Plant Taxonomy and Conservation research programme of NIFS collaborates with Departent of Botany University of Peradeniya from 2016-03-01 to 2022-12-31.
   Summary: Impact of native bamboo, Bambusa bambos on natural forest ecosystems are explored through this collaboration.
   Collaborators: Prof. S. Madawala, and ***Prof. D.S.A. Wijesundara***

7. Plant Taxonomy and Conservation research programme of NIFS collaborates with Department of Crop Science, Faculty of Agriculture, University of Peradeniya from 2017-07-01 to 2025-12-31.
   Summary: Taxonomic studies of Pteridophytes (ferns) of Sri Lanka is the major research activity in this collaboration.
   Collaborators: Dr. R. H. G. Ranil, and ***Prof. D.S.A. Wijesundara***

8. Plant Taxonomy and Conservation research programme of NIFS collaborates with Department of Chemistry, University of Peradeniya from 2016-03-01 to 2025-12-31.
   Summary: The main research activities of this collaboration are phytochemical studies of higher plants and lichens.
   Collaborators: Prof. V. Karunarathne, and ***Prof. D.S.A. Wijesundara***

RESEARCH SUPERVISION

Ph. D Completed

1. Ph.D degree was awarded to Ms. J.M.K.W. Kumari in the year 2022 by Postgraduate Institute of Science, University of Peradeniya for the thesis titled "Development of novel poly (ethylene oxide)/ conducting polymer based electrolytes and graphite based counter electrodes for dye/q-dot sensitized solar cells." The research was supervised by **Prof. M.A.K.L. Dissanayake,** and **Prof. G.K.R. Senadeera.**

2. Ph.D degree was awarded to Ms. E. Munasinghe in the year 2022 by the University of Keleniya for the thesis titled "Development of a rapid diagnostic test kit against dengue virus (denv) using nanotechnology". The research was supervised by Prof. W. Abewickreme, Dr. A.M.M.H Athapattu,
Dr. L. Jayarathna, Prof.S. G Senarathne, and Prof. P.V Udagama.

3. Ph. D degree was awarded to R.D.A. Gunasekara in the year 2022 by the University of Peradeniya for the thesis titled "Establishment of native trees islands in degraded grasslands at the Knuckles conservation forest, Sri Lanka". The research was supervised by **Prof. G. Seneviratne**.

4. Ph. D degree was awarded to Mr. P. Dehigaspitiya in the year 2022 by the University of Southern Queensland for the thesis titled "Site-specific photosynthesis in wheat *(Triticum aestivum L.*)". The research was supervised by **Prof. S. Seneweera.**

M.Phil. Completed

1. M.Phil degree was awarded to Mr. A.M.K.L. Abeykoon in year 2022 by University of Peradeniya for the thesis titled "Synthesis and characterization of copper zinc tin sulfide (CZTS) nanostructured thin films for photo electrochemical water splitting ". The research was supervised by **Prof. J. Bandara.**

2. M.Phil degree was awarded to Mr. D.G.B.C. Karunarathne in the year 2022 by PGIS, University of Peradeniya for the thesis titled "Fabrication of low-cost perovskite solar cells using powder pressing method". The research was supervised by **Prof. G.R.A. Kumara,** and Prof. R.M.G. Rajapakse.

3. M.Phil degree was awarded to Ms. T.M. Paranavithana in year 2022 by Postgraduate Institute of Science, University of Peradeniya for the thesis titled "Development of baseline soil information system for paddy growing soils of Sri Lanka based on soil carbon and other selected soil macro- and micro-nutrients". The research was supervised by **Prof. R.R. Ratnayake**.

4. M.Phil degree was awarded to Ms. S.A. Samaranayake in the year 2022 by Rajarata University of Sri Lanka for the thesis titled "Hotsprings at wahawa Sri Lanka: a geophysical and a geochemical study to understand the possible subsurface geological causative factors". The research was supervised by **Prof. N.D. Subasinghe** Dr. U. Dahanayake Dr. S.O. Wijewaradhene.

5. M.Phil degree was awarded to Ms. V.M.R. Swarnamali in year 2022 by Uva Wellassa University for the thesis titled "Synthesis of Silver Vein Graphite Composite and its Potential Applications as Antibacterial Agent and Anode Material". The research was supervised by Dr. T.H.N.G. Amaraweera, Dr. N.W.B. Balasooriya, **Dr. H.W.M.A.C. Wijayasinghe,** and Dr. M.M.S.N. Premetilake.

6. M.Phil degree was awarded to Ms. A. Deen in year 2022 by Postgraduate Institute of Science for the thesis titled "The effect of simulated gastrointestinal digestion on antioxidants/antioxidative capacity and fermenetative properties of commonly consumed raw and boiled legumes in Sri Lanka". The research was supervised by **Dr. Ruvini Liyanage**, **Prof. U.L. B Jayasinghe**, and Prof. B.C Jayawardana.

M.Sc. Completed

1. M.Sc. degree was awarded to Ms. M.C.M. Rajapaksha in the year 2022 by the University of Peradeniya for the thesis titled "Synthesis and characterization of reduced SrTiO3 hotocatalyst for water splitting under visible light irradiation". The research was supervised by **Prof. J. Bandara.**

2. M.Sc. degree was awarded to Mr. S.M.B. Dissanayake in the year 2022 by the University of Peradeniya for the thesis titled "Coconut shell based activated charcoal for applications in supercapacitor". The research was supervised by **Prof. G.R.A. Kumara,** and Prof. R.M.G. Rajapakse.

3. M.Sc. degree was awarded to Ms. C.P. Rajapaksa in the year 2022 by the University of Peradeniya for the thesis titled " Adsorption of Crystal Violet basic dye in textile waste water using Biochar derived from rice husk ". The research was supervised by **Prof. M.C.M. Iqbal,** and Dr. C.S. Kalpage.

4. M.Sc. degree was awarded to Mr. M.C.A. Galappaththi in the year 2022 by the University of Peradeniya for the thesis titled "Die-back of Manilkara hexandra in Bundala national park: potential edaphic factors". The research was supervised by **Prof. G. Seneviratne**.

5. M.Sc. degree was awarded to Ms. S.B.A.D.Y. Jayawardena in the year 2022 by the University of Peradeniya for the thesis titled "Fractal analysis of river networks for hydro meteorological disaster management". The research was supervised by **Prof. N.D. Subasinghe**.

B. Sc. Research Project completed

1. Mr. W.A.C.J. Wenappuliarachchi, B.Sc. undergraduate from graduated from Open University, Sri Lanka in year 2022. The research project on " Electrospun Nanofibres for controlled drug release" was conducted at the NIFS under the supervision of **Prof. M.A.K.L. Dissanayake.**

2. Mr. W.A.L.P. Wedasingha graduated from the University of Peradeniya in the year 2022. The research project on "Removal of Manganese using Graphene Oxide Quantum Dots" was conducted at the NIFS under the supervision of Dr. W.M.A.T. Bandara, Dr. M.B. Wijesinghe, **Dr. L. Jayarathna,** and **Prof. R. Weerasooriya** from 2022-03-01 to 2022-10-14.

3. Ms. I. Chandrasekara graduated from the University of Peradeniya in the year 2022. The research project on "The Efficiency of Manganese Ion Removal from Water using Manganese Oxide Coated Modified Zeolite" was conducted at the NIFS under the supervision of **Dr. L. Jayarathna,** and Dr. Athula Bandara from 2021-11-22 to 2022-08-22.

4. Mr. W.R.S. Sumanasiri graduated from the University of Peradeniya in the year 2022. The research project on "Removal of ammonium ions from wastewater by modified zeolite and use as slow ammonium-releasing fertilizer" was conducted at the NIFS under the supervision of **Dr. L. Jayarathna,** and Dr. A. Bandara from 2021-12-15 to 2022-08-25.

5. Ms. R.A. Weerasinghe graduated from the University of Peradeniya in the year 2022. The research project on "Degradation of halogenated compounds in water using nano zero-valent iron supported on LTA Zeolite" was conducted at the NIFS under the supervision of **Dr. L. Jayarathna,** and Dr. A. Bandara from 2021-11-21 to 2022-08-31.

6. Mr. D.L.H.V.W. Hemalal graduated from the University of Peradeniya in the year 2022. The research project on "Removal of Mn in Water by Modified Kaolin" was conducted at the NIFS under the supervision of **Dr. L. Jayarathna,** Dr. Athula Bandara, and Dr. S. K. Weragoda from 2021-11-27 to 2022-11-01.

7. Ms. J.K.T. Nirmani graduated from the University of Peradeniya in the year 2022. The research project on "Hexavalent Chromium Removal from Contaminated Water by Humic acid Coated Metakaolin" was conducted at the NIFS under the supervision of **Dr. L. Jayarathna,** and Dr. A. Igalavithana from 2022-09-19 to 2022-12-19.

8. Ms. D.D.T. De Silva graduated from the University of Peradeniya in the year 2022. The research project on "Water quality analysis, Phosphate removal from water for solution for eutrophication" was conducted at the NIFS under the supervision of **Dr. L. Jayarathna,** and Dr. A. Igalavithana from 2022-09-19 to 2022-12-19.

9. Ms. M.N.F Ifadha graduated from Rajarata University of Sri Lanka in the year 2022. The research project on "Impact of different extraction solvents on antioxidant capacity of *salicornia sp*" was conducted at the NIFS under the supervision of **Prof. L. Jayasinghe** from 2022-06-01 to2022-09-30.

10. Ms. K.S.N. Dilrukshi graduated from Rajarata University of Sri Lanka in the year 2022. The research project on "Influence of sonication treatment on the phenolic content and antioxidant activity in *salicornia brachiata*" was conducted at the NIFS under the supervision of **Prof. L. Jayasinghe** from 2022-06-22 to 2022-09-30.

11. Ms. W.G.R. Gangani graduated from the University of Peradeniya in the year 2022. The research project on "Bioavailability of protein, antioxidant, and heavy metals of two edible seaweeds, *Kappaphycus alvarezii* and *Caulerpa lentillifera*" was conducted at the NIFS under the supervision of Prof. B.C. Jayawardana, **Dr. R. Liyanage,** and Dr. P. Weththasinghe from 2022-09-20 to 2022-12-01.

12. Ms. W.A.D.E.I. Wijesinghe graduated from the University of Peradeniya in the year 2022. The research project on "Development of an Omega-3 enriched feed ingredient: Tailoring fatty acid composition of black soldier fly (*Hemrmetia illucens*) larvae using fish offal and sea weed" was conducted at the NIFS under the supervision of Prof. B.C. Jayawardana, Dr. P. Weththasinghe, **Dr. R. Liyanage,** and Prof. J. Vidanarachchi from 2022-09-19 to 2022-12-01.

13. Ms. R.A.U. Chandraprabha graduated from the University of Peradeniya in the year 2022. The research project on "Evaluation of antimicrobial and antioxidant properties of five seaweeds in Sri Lanka" was conducted at the NIFS under the supervision of Prof. B.C. Jayawardena, Dr. P. Weththasinghe, **Dr. R. Liyanage,** Prof. J.A.M.S. Jayathilake, and Dr. W.L.I. Wijesekara from 2022-09-07 to 2022-12-01.

14. Ms. Y.A.Y.D. Yapa graduated from the University of Jaffna in the year 2022. The research project on "Investigating Bioactive Properties of Hydrosol Produced from Ceylon Cinnamon Bark" was conducted at the NIFS under the supervision of **Dr. R. Liyanage,** and Ms. K. Kemashalini from 2022-02-15 to 2022-07-27.

15. Ms.H.M.W. Dilrukshi graduated from Sabaragamuwa University of Sri Lanka in the year 2022. The research project on "Assessment of low-calorie foods formulated with stevia (*stevia rebaudiana bertoni*) leaf powder" was conducted at the NIFS under the supervision of **Prof. J.M.N. Marikkar** from 2021-11-21 to 2022-03-29.

16. Ms. B.G.D.S. Madumali graduated from the University of Jaffna in the year 2022. The research project on "Application of FTIR spectroscopy to determine alpha-glucosidase inhibitory activity in selected edible plants of Sri Lanka" was conducted at the NIFS under the supervision of **Prof. J.M.N. Marikkar** from 2022-02-02 to 2022-06-02.

17. Ms. M.M.T. Wijesekara graduated from the University of Peradeniya in the year 2022. The research project on "Nutritional composition and anti-hyperglycemic potential of *Terminalia catappa L.* fruits' seed kernel" was conducted at the NIFS under the supervision of **Prof. J.M.N. Marikkar** from 2022-09-01 to 2022-12-27.

18. Ms. P.S. Ruwanpathirana graduated from the University of Jaffna, Sri Lanka in the year 2022. The research project on "Cyanobacteria grown in low-cost media as organic fertilizer" was conducted at the NIFS under the supervision of **Prof. R.R. Ratnayake** from 2022-02-12 to 2022-08-15.

19. Ms. W.M.C.S. Weerasinghe graduated from the University of Sri Jayawardenepura, Sri Lanka, in the year 2022. The research project on "An in vitro study of some cyanobacteria isolated from selected saltmarsh and mangrove environments of Sri Lanka for nutrient-based applications" was conducted at the NIFS under the supervision of **Prof. R.R. Ratnayake** from 2021-12-04 to 2022-12-08.

20. Mr. J.M.W.G.T.S. Senevirathne graduated from the University of Peradeniya in the year 2022. The research project on "To synthesis of maghemite coated sand for adsorptive removal of arsenic from drinking water" was conducted at the NIFS under the supervision of **Prof. R. Weerasooriya,** and Dr. A. Bandara from 2021-11-29 to 2022-08-15.

21. Mr. C.L. Jayaweera graduated from the m University of Peradeniya in the year 2022. The research project on " Preparation of pressure-driven membrane using Sri Lankan Graphite, characterization of membrane and its surface morphology, measuring the hydraulic performance of the membrane and evaluate the fabricated membrane with commercial membranes" was conducted at the NIFS under the supervision of **Prof. R. Weerasooriya** from 2021-12-10 to 2022-08-25.

Undergraduate Industrial Training – Completed

1. Ms. S.M.S.U.L. Siriwardhana from the Institute of Chemistry Ceylon completed the Industrial Training at NIFS under the supervision of **Dr. L. Jayarathna** from 2019-12-16 to 2020-07-27.

2. Ms. T.M.P.K. Thennakoon from the Wayamba University of Sri Lanka completed the Industrial Training at NIFS under the supervision of **Prof. L Jayasinghe** from 2022-03-22 to 2022-11-30.

3. Ms. G.W.N.M.G. Waduge from the University of Ruhuna completed the Industrial Training at NIFS under the supervision of Dr. C. Rupasinghe, and **Prof. G.R.A. Kumara** from 2020-09-14 to 2022-01-10.

4. Mr. B.A.S.S. Bamunuarachchi from the University of Kelaniya completed the Industrial Training at NIFS under the supervision of **Prof. D.N. Magana-Arachchi** from 2022-02-01 to 2022-07-01.

5. Ms. R.G.N.D. Rambodagedara from the University of Kelaniya completed the Industrial Training at NIFS under the supervision of **Prof. D.N. Magana-Arachchi** from 2022-02-01 to 2022-07-01.

6. Mr. J.M.V.A. Jayawardana from the University of Peradeniya completed the Industrial Training at NIFS under the supervision of **Prof. N.D. Subasinghe** from 2021-12-20 to 2022-06-20.

7. Mr. H.W.G.P.T. Gamage, from the University of Peradeniya completed the Industrial Training at NIFS under the supervision of **Prof. N.D. Subasinghe** from 2021-12-20 to 2022-06-20.

8. Ms. M.N. Fraza from the University of Colombo completed the Industrial Training at NIFS under the supervision of **Prof. R. Weerasooriya** from 2022-06-21 to 2022-12-20.

9. Ms. P.S. Ruwanpathirana from the Univeristy of Jaffna completed the Industrial Traning at NIFS under the Supervision of **Prof. R. R. Ratnayake** from 2021.01.10 to 2022.02.10.

10. Ms. W.M.C.S. Weerasinghe from the Sri Jayawardenepura University completed the Industrail Training at NIFS under the supervision of **Prof. R. R. Ratnayake** from 2021.11.03 to 2022.12.03.

Trained as a Research Student

1. Ms. A. Rajapakshe was trained as a Research student in the research area of Environmental Science at NIFS under the supervision of **Dr. L. Jayarathna** from 2019-09-16 to 2022-06-30.

2. Ms. R.M.P.D. Rathnayake was trained as a Research student in the research area of Natural Products at NIFS under the supervision of **Prof. L. Jayasinghe,** and **Prof. N.K.B. Adikaram** from 2022-12-14 to 2022-12-31.

3. Ms. K.A. Siriwardhene was trained as a Research student in the research area of Natural Products at NIFS under the supervision of **Prof. L. Jayasinghe** from 2022-01-13 to 2022-12-31.

4. Mr. A.S.I. De Alwis was trained in 2022 as a Research student at NIFS in the research area of "Food Science" under the supervision of **Dr. R. Liyanage.**

5. Ms. K.D.H.S.M.S. De Silva was trained as a Research student in the research area of Cyanobacteria at NIFS under the supervision of **Prof. D.N. Magana-Arachchi, Prof. M. Vithanage,** and Dr. R.P. Wanigatunge from 2020-01-01 to 2022-08-31.

6. Ms. J.M.S.K. Jayasundara was trained in 2022 as a Research student at NIFS in the research area of "Molecular Microbiology and Human Diseases" under the supervision of **Prof. D.N. Magana-Arachchi.**

7. Ms. H.S. Walahewa was trained in 2022 as a Research student at NIFS in the research area of "Molecular Microbiology and Human Diseases" under the supervision of **Prof. D.N. Magana-Arachchi.**

8. Mrs. E.M. Herath was trained as a Research student in the research area of Plant Sciences at NIFS under the supervision of **Prof. G. Seneviratne** from 2021-11-01 to 2022-12-31.

9. Mr. W.M.K.D.S. Warnakulasooriya was trained as a Research student in the research area of Microbiology at NIFS under the supervision of **Prof. G. Seneviratne** from 2019-07-01 to 2022-12-31.

Postgraduate Thesis Submitted

1. Mr. M. Premarathna registered at the University of Peradeniya submitted the Ph.D. thesis titled "Microbial biofilms and their network interactions" on 2022-05-27. The research was conducted at NIFS under the supervision of **Prof. G. Seneviratne.**

2. Ms. D.G.S.N. Samarasinghe registered at the University of Kelaniya submitted the M.Phil. thesis titled "Diversity and distribution of thermophilic microorganisms in hot springs of Sri Lanka: A metagenomics approach" on 2022-09-30. The research was conducted at NIFS under the supervision of **Prof. D.N. Magana-Arachchi,** and Dr. R. Wanigatunge.

3. Ms. J.M.P.S. Madamarandawala registered at University of Peradeniya submitted the M.Phil. thesis titled "Genetic Characterization of Drug Resistant *Mycobacterium tuberculosis* Isolates from Pulmonary Tuberculosis Patients and Identification of Associated Host Blood Transcriptomic Biomarkers" on 2022-12-15. The research was conducted at NIFS under the supervision of **Prof. D.N. Magana-Arachchi,** Prof. R.G.S.C. Rajapakse, and Dr. R.M.D. Madegedara.

4. Ms.V.K. Sewwandi registered at the University of Peradeniya submitted the M.Phil. thesis titled " Nutritional and biochemical properties of raw and processed Artocarpus nobilis seeds" on 2022-11-28. The research was conducted at NIFS under the supervision of **Dr. Ruvini Liyanage,** Prof. R. Sivakanesan, Prof. C.N.R.A. Alles, **Prof. D.S.A. Wijesundara.**

Postdoctoral research work in progress

1. Dr. C.A. Thotawatthage is conducting Postdoctoral research in the research area of Environmental Sciences at NIFS under the supervision of **Prof. D.N. Magana-Arachchi,** and Prof. C. Wickramasinghe since 2018-07-03.

Ph.D. Research work in progress

1. Ms. K.A.D.M.S. Sarathchandra is reading for a Ph.D. degree at the University of Peradeniya in the research area of Antimony sulfide planar solar cells at NIFS under the supervision of **Prof. J. Bandara** since 2022-06-09.

2. Ms. H.M.S.K.H. Bandara is reading for a Ph.D. degree the University of Peradeniya in the research area of Natural Product Chemistry at NIFS under the supervision of **Prof. L. Jayasinghe,** and Dr. N. R. Amarasinghe since 2018-08-01.

3. Ms. D.M.D.M. Dissanayake is reading for a Ph.D. degree at the University of Peradeniya in the research area of Natural product chemistry at NIFS under the supervision of **Prof. L. Jayasinghe,** Prof. N. S. Kumar and N. B. K. Adikaram since 2019-10-24.

4. Ms. A.G.A.W. Alakolanga is reading for a Ph.D. degree at Jacobs University, Bremen, Germany in the research area of Natural Products and Biochemistry at NIFS under the supervision of **Prof. L. Jayasinghe,** and Prof. N. Kuhnert since 2020-10-01.

5. Ms. S. Saseevan is reading for a Ph.D. degree at the University of Peradeniya in the research area of identification of urinary biomarkers for CKD at NIFS under the supervision of **Prof. D.N. Magana-Arachchi,** Prof. S. Rajapakse, and Dr. W.A.A.G.N. Nishanthi since 2020-09-02.

6. Ms. R.W.T.M.R.T.K. Bowange is reading for a Ph.D. degree at the Postgraduate Institute of Science, University of Peradeniya in the research area of Microbiology at NIFS under the supervision of **Prof. R.R. Ratnayake** since 2018-10-18.

7. Mr. E.M.S. Ekanayake is reading for a Ph.D. degree at the Uva Wellassa University in the research area of Conservation Biology at NIFS under the supervision of **Prof. R.R. Ratnayake** since 2021-04-27.

8. Ms. W.I. Sandamali is reading for a Ph.D. degree at the Open University of Sri Lanka in the research area of Engineering nano-materials for photovoltaics at NIFS under the supervision of **Prof. G.K.R. Senadeera,** and **Prof. M.A.K.L. Dissanayake** since 2019-08-01.

9. Ms. A.T.D. Rathnathilaka is reading for a Ph.D. degree at the University of Peradeniya in the research area of Microbiology at NIFS under the supervision of **Prof. G. Seneviratne** since 2018-10-15.

10. Mrs. U.M.P.K. Perera is reading for a Ph.D. degree at the Postgraduate Institute of Science, Peradeniya in the research area of Plant stress biology and Nanotechnology at NIFS under the supervision of **Prof. S. Seneweera,** Prof. D.M.D Yakandawala, and Dr. L. Jayarathne since 2019-06-03.

11. Ms. L.S.J. Cabral de Mel is reading for a Ph.D. degree at the University of Southern Queensland in the research area of Wildlife Biology at NIFS under the supervision of Dr. B. Allen, Prof. T. Maraseni, **Prof. S. Seneweera,** Prof. D. Weerakoon, and Prof. A. Dangolla since 2019-08-01.

12. Mr. P. Abeywardena is reading for a Ph.D. degree at the University of Peradeniya in the research area of Petrology, Structural Geology at NIFS under the supervision of Dr. P.L. Dharmapriya, Prof. S. Malaviarachchi, and **Prof. N.D. Subasinghe** since 2019-08-07.

13. Mr. H.D. Jayasinghe is reading for a Ph.D. degree at the University of Colombo in the research area of DNA Barcoding, Morphological Taxonomy, and Phylogeny at NIFS under the supervision of **Prof. D.S.A. Wijesundara,** Dr. S. Ranasinghe, and Dr. H. Kathriarachchi since 2018-12-15.

14. Mr. W.T.R.S. Fernando is reading for a Ph.D. degree at the Postgraduate Institute of Science, University of Peradeniya in the research area of Cathode Development for Rechargeable Batteries at NIFS under the supervision of **Dr. H.W.M.A.C. Wijayasinghe** since 2020-12-08.

M.Phil. Research work in progress

1. Ms. M.A. Farhana is reading for a M.Phil. degree at the University of Peradeniya in the research area of Solar Cells at NIFS under the supervision of **Prof. J. Bandara** since 2018-10-20.

2. Mr. A.G.C.N. Wijerathna is reading for a M.Phil. degree at the University of Peradeniya in the research area of Solar Water Splitting at NIFS under the supervision of **Prof. J. Bandara** since 2021-11-25.

3. Mr. R.P.P.D. Rajakaruna is reading for a M.Phil. degree at the University of Peradeniya in the research area of Solar cells at NIFS under the supervision of **Prof. J. Bandara** since 2022-06-09.

4. Mr. S.M.D.M.C Senarathna is reading for a M.Phil. degree at University of Peradeniya in the research area of Air pollution monitoring and modelling at NIFS under the supervision of **Dr. G. Bowatte** since 2018-09-25.

5. Mr. K. Umair is reading for a M.Phil. degree at the Postgraduate Institute of Science, University of Peradeniya in the research area of Dye-sensitized solar cells at NIFS under the supervision of **Prof. M.A.K.L. Dissanayake,** and **Prof. G.K.R. Senadeera** since 2018-09-10.

6. Ms. S. H. Hettiarachchi is reading for a M.Phil. degree at the Postgraduate Institute of Science, University of Peradeniya in the research area of Electrospun Nanofibers, Dye-sensitized solar cells, Nanofiber water filter at NIFS under the supervision of **Prof. M.A.K.L. Dissanayake,** and **Prof. G.K.R. Senadeera** since 2020-11-16.

7. Ms. J. L. Subasinghe is reading for a M.Phil. degree (Regn. Pending) at the Postgraduate Institute of Science, University of Peradeniya in the research area of Dye-sensitized solar cells and computatithe onal chemistry at NIFS under the supervision of **Prof. M.A.K.L. Dissanayake,** and **Prof. G.K.R. Senadeera** since 2022-12-01.

8. Ms.T. Kulangana is reading for a M. Phil degree at the University of Peradeniya in the research area of Plant and Environmental Sciences at NIFS under the supervision of **Prof. M.C.M. Iqbal** since 2021-10-05.

9. Ms. M.D.R. Perera is reading for a M.Phil. degree at the University of Peradeniya in the research area of Materials Chemistry at NIFS under the supervision of **Dr. L. Jayarathna** since 2020-11-16.

10. Ms. R.A.L.R. Amarasena is reading for a M. Phil degree at the University of Peradeniya in the research area of Material Chemistry at NIFS under the supervision of **Dr. L. Jayarathna** since 2020-11-24.

11. Mrs. L.N. Manawadu is reading for a M.Phil. degree at the University of Peradeniya in the research area of Post-Harvest Pathology at NIFS under the supervision of **Prof. N.K.B. Adikaram, Prof. L. Jayasinghe,** and Prof. D. Yakandawala since 2017-09-15.

12. Ms. H.S.T. Kaushalya is reading for a M. Phil degree at the University of Peradeniya in the research area of Chemistry at NIFS under the supervision of **Prof. L. Jayasinghe,** Prof. N. S. Kumar, and **Prof. N.K.B. Adikaram** since 2018-04-02.

13. Ms. B.M.S. Nilmini is reading for a M. Phil degree at the University of Peradeniya in the research area of Natural Product Chemistry at NIFS under the supervision of **Prof. L. Jayasinghe, Prof. N.K.B. Adikaram,** and Prof. N. S. Kumar since 2018-05-15.

14. Ms. J.C. Kalinga is reading for a M. Phil degree at the University of Peradeniya in the research area of Bioactive secondary metabolites associated with plants and endophytic fungi at NIFS under the supervision of **Prof. L. Jayasinghe,** and **Prof. N.K.B. Adikaram** since 2020-12-01.

15. Ms. K.D.P.U. Siriwardhane is reading for a M. Phil degree at the University of Peradeniya in the research area of Bioactive secondary metabolites associated with plants and endophytic fungi at NIFS under the supervision of **Prof. L. Jayasinghe,** and **Prof. N.K.B. Adikaram** since 2020-12-01.

16. Ms. N. Athapattu is reading for a M. Phil degree at the University of Peradeniya in the research area of Bioactive secondary metabolites associated with plants and endophytic fungi at NIFS under the supervision of **Prof. L. Jayasinghe,** and **Prof. N.K.B. Adikaram** since 2021-10-04.

17. Ms. H.M.N.P. Herath is reading for a M. Phil degree at the University of Peradeniya in the research area of Natural products at NIFS under the supervision of **Prof. L. Jayasinghe,** and Dr. D. Perera since 2022-05-06.

18. Mr. A.D.T. Medagedara is reading for a M. Phil degree at the University of Peradeniya in the research area of Electrochemical energy storage devices at NIFS under the supervision of **Prof. G.R.A. Kumara,** and Dr. T.M.W.J. Bandara since 2021-03-01.

19. Ms. M.I.U. Weerasinghe is reading for a M. Phil degree at the University of Peradeniya in the research area of Solar Energy at NIFS under the supervision of Prof.T.M.W.J. Bandara, and **Prof. G.R.A. Kumara** since 2022-03-15.

20. Mr. A.E. Gunasekaran is reading for a M. Phil degree (Regn. Pending) at the Postgraduate Institute of Science in the research area of Computer Science at NIFS under the supervision of **Prof S. R. Kodituwakku,** and Dr. R. D. Nawarathna since 2022-11-08.

21. Ms. H.C. Hettiarachchi is reading for a M. Phil degree (Regn. Pending) at the Postgraduate Institute of Science in the research area of Statistics, Mathematics at NIFS under the supervision of Prof. P. Wijekoon, Prof. R. Weerasooriya, Dr. L. S. Nawarathna since 2022-12-01.

22. Ms. R. Kulasingam is reading for a M. Phil degree at Postgraduate Institute of Agriculture in the research area of Food Science and Technology at NIFS under the supervision of **Dr. R. Liyanage,** and Prof.T Madujith since 2020-11-01.

23. Ms. M.A. Wickramasinghe is reading for a M. Phil degree at University of Peradeniya in the research area of Food and Nutrition at NIFS under the supervision of **Dr. R. Liyanage,** Prof. T. Madujith, Prof. Fruhling Vesta Rijsdijk, Dr. Helena Zavos, Prof. R. Jayawardena, and Prof. A. Sumathipala since 2022-02-28.

24. Ms. H.R.P. Prasadini is reading for a M. Phil degree (Regn. Pending) at Post Graduate Institute of Science, University of Peradeniya in the research area of Food Science at NIFS under the supervision of **Dr. R. Liyanage** since 2022-12-20.

25. Ms. S.M.N.S. Nirmani is reading for a M. Phil degree at University of Sri Jayewardenepura in the research area of Food Science at NIFS under the supervision of Dr. C. Jayathilake, Prof.I. Wickramasinghe, **Dr. R. Liyanage,** and Dr. M. Jayasinghe since 2022-09-07.

26. Ms. S.S.K. Marasinghe is reading for a M. Phil degree at University of Peradeniya in the research area of Food Chemistry at NIFS under the supervision of **Prof. J.M.N. Marikkar** since 2018-06-01.

27. Ms. K.M.R.U. Gunarathne is reading for a M. Phil degree at University of Peradeniya in the research area of Food Chemistry at NIFS under the supervision of **Prof. J.M.N. Marikkar** since 2019-09-02.

28. Ms. B.S.K. Ulpathakumbura is reading for a M. Phil degree at University of Peradeniya in the research area of Food Chemistry at NIFS under the supervision of **Prof. J.M.N. Marikkar** & **Prof. L. Jayasinghe** since 2021-07-13.

29. Ms. A.M. Rekasa is reading for a M. Phil degree at Southeastern University of Sri Lanka in the research area of Food Science and Technology at NIFS under the supervision of **Prof. J.M.N. Marikkar** since 2021-03-01.

30. Ms. W.R.U.A. Bandara is reading for a M. Phil degree at the Univeristy of Peradeniya in the research area of Moluecular Microbiology at NIFS under the supervision of **Prof. D.N. Magana-Arachchi**, Dr. D. Madagedara, and Prof. W.A.I.P. Karunaratne since 2020-12-15.

31. Ms. W.B.C.P. Weerarathne is reading for a M. Phil degree at University of Peradeniya in the research area of Asbestos related occupational Health at NIFS under the supervision of **Prof. D.N. Magana- Arachchi, Dr. A Wijayasinghe,** and **Dr. M. Vithanage** since 2019-02-02.

32. Ms. W.M.S.N. Bandara is reading for a M. Phil degree at the University of Kelaniya in the research area of Environmental Toxicology at NIFS under the supervision of **Prof. D.N. Magana-Arachchi, Prof. M.S. Vithanage**, and Dr. R.P. Wanigatunge since 2021-07-08.

33. Ms. H.M.S.A.T. Gunathilaka is reading for a M. Phil degree at University of Peradeniya in the research area of Molecular Microbiology at NIFS under the supervision of **Prof. D.N. Magana-Arachchi,** and Dr. W.R.P. Wijesinghe since 2022-05-23.

34. Ms. R.I.S. Karunathilaka is reading for a M. Phil degree (Regn. Pending) at University of Peradeniya in the research area of Molecular Microbiology at NIFS under the supervision of **Prof. D.N. Magana-Arachchi** since 2022-12-20.

35. Ms. T.M. Paranavithana is reading for a M. Phil degree at Postgraduate Institute of Science, University of Peradeniya in the research area of Soil Carbon Sequestration at NIFS under the supervision of Prof. **R.R. Ratnayake** since 2018-10-15.

36. Ms. C. Bandara is reading for a M. Phil degree (Regn. Pending) at Postgraduate Institute of Science, University of Peradeniya in the research area of Potential of Cyanobacteria for value addition at NIFS under the supervision of **Prof. R.R. Ratnayake** since 2022-12-12.

37. Ms. A. Muralitharan is reading for a M. Phil degree (Regn. Pending) at Post Graduate Institute of Agriculture, University of Peradeniya in the research area of Soil science at NIFS under the supervision of **Prof. R.R. Ratnayake** since 2022-12-21.

38. Ms. D.D.M.O. Dissanayake is reading for a M. Phil degree at Postgraduate Institute of Science, University of Peradeniya in the research area of Soil Carbon sequestration at NIFS under the supervision of **Prof. R.R. Ratnayake,** and **Prof. S. Seneweera** since 2018-07-26.

39. Ms. S.W. Meepegamage is reading for a M. Phil degree at University of Peradeniya in the research area of Molecular Microbiology at NIFS under the supervision of **Prof. G. Seneviratne** since 2017-10-01.

40. Mr. D.R. Charles is reading for a M. Phil degree at university of peradeniya in the research area of Geophysics at NIFS under the supervision of **Prof. N.D. Subasinghe** Prof. H.M.T.G.A. Pitawala since 2012-02-12.

41. Ms. G. Wijesinghe is reading for a M.Phil. degree at University of Peradeniya in the research area of Sedimentology, Mineral Exploration at NIFS under the supervision of Dr. P.L. Dharmapriya, Dr. S. Malaviarachchi, Mr. M. Satish-Kumar, and **Prof. N.D. Subasinghe** since 2018-11-24.

42. Ms. M.P. Thilakarathna is reading for a M. Phil degree at University of Peradeniya in the research area of geophysical and hydrogeological studies at NIFS under the **Prof. N.D. Subasinghe** since 2021-02-01.

43. Mr. R.A. Rathnayake is reading for a M. Phil degree at University of Peradeniya in the research area of Thermoelectricity at NIFS under the supervision of **Prof. N.D. Subasinghe,** and Dr. B.M.K. Pemasiri since 2020-01-27.

44. Ms. P. Rukshagini is reading for a M. Phil degree at University of Peradeniya in the research area of water chemistry at NIFS under the supervision of **Prof. R. Weerasooriya** since 2018-03-01.

45. Ms. P.M.C.J. Bandara is reading for a M. Phil degree at University of Peradeniya in the research area of Water Chemistry at NIFS under the supervision of **Prof. R. Weerasooriya,** Prof. A. R. Kumarasinghe, Prof. Xing Chen, and Prof. Balasooriya since 2020-12-01.

46. Ms. H.C. Hettiarachchi is reading for a M. Phil degree at University of Peradeniya in the research area of Statistics, Mathematics at NIFS under the supervision of Prof. P. Wijekoon, **Prof. R. Weerasooriya,** Dr. L. S. Nawarathna since 2022-12-01.

47. Ms. H.M.H.D.K. Naranpanawa is reading for a M. Phil degree at Postgraduate Institute of Science, University of Peradeniya in the research area of Development of local graphite for lithium-ion batteries at NIFS under the supervision of **Dr. H.W.M.A.C. Wijayasinghe,** and Dr. N.W.B. Balasooriya since 2018-06-01.

48. Mr. J.H.T.B. Jayamaha is reading for a M. Phil degree at University of Jaffna in the research area of Novel Electrolyte and Electrode Materials for Secondary Sodium-ion and Magnesium-ion Batteries at NIFS under the supervision of Dr. K. Vignarooban, and **Dr. H.W.M.A.C. Wijayasinghe** since 2019-01-01.

49. Mr. Y.M.I.B. Samarakoon is reading for a M. Phil degree at Postgraduate Institute of Science, University of Peradeniya in the research area of Development of vein quartz for energy conversion applications at NIFS under the supervision of **Dr. H.W.M.A.C. Wijayasinghe,** Dr. T.H.N.G. Amaraweera, and Dr. R.J.K.U. Ranathunga since 2019-06-01.

50. Mr. P.L.C.U.S.B. Lekamge is reading for a M. Phil degree at PGIS, University of Peradeniya in the research area of Forest restoration and Conservation at NIFS under the supervision of **Prof. D.S.A. Wijesundara, Prof. M.C.M. Iqbal,** and Prof. H.M.S.P. Madawala since 2017-02-01.

51. Mr R. Brahmanage is reading for a M. Phil degree at University of Colombo in the research area of Fungi in Eucalyptus plantations at NIFS under the supervision of **Prof. D.S.A. Wijesundara,** Prof Nalin Wijayawardena, Prof S. Ariyawansa, and Prof C. Nanayakkara since 2022-01-01.

52. Ms. B. Premarathne is reading for a M. Phil degree at PGIS in the research area of Mushroom at NIFS under the supervision of **Prof. D.S.A. Wijesundara** since 2022-10-01.

M.Sc. Research work in progress

1. Mr. S.A.D.A.V. Sumithraarachchi, M.Sc. student of the University of Peradeniya is conducting the M.Sc. research project in the research area of "Water Purification" at the NIFS under the supervision of **Prof. J. Bandara** since 2018-06-18.

2. Ms. J.M.R.V. Jayasundara, M.Sc. student of the University of Peradeniya is conducting the M.Sc. research project in the research area of "Photocatalysts" at the NIFS under the supervision of **Prof. J. Bandara** since 2020-11-21.

3. Mr. D.C. Rajapakse, M.Sc. student of the University of Peradeniya is conducting the M.Sc. research project in the research area of "Water Splitting with aid of thin film photocatalytic surface" at the NIFS under the supervision of **Prof. J. Bandara** since 2022-06-12.

4. Ms. A. Karunarathne, M.Sc. student of the Postgraduate Institute of Science, University of Peradeniya is conducting the M.Sc. research project in the research area of "Quantum dot sensitized solar cells" at the NIFS under the supervision of Mr. T.M.W.J. Bandara, and **Prof. M.A.K.L. Dissanayake** since 2022-07-17.

5. Ms. B.G.R.R Bandara, M.Sc. student of the Qilu University of Technology is conducting the M.Sc. research project in the research area of "Bioactive metabolites from plants" at the NIFS under the supervision of **Prof. L. Jayasinghe,** Prof. T. Li, and Prof. N. Wang since 2021-10-05.

6. Ms. S.M.K.T. Samarakoon, M.Sc. student of the University of Peradeniya is conducting the M.Sc. research project in the research area of "Microbiology" at the NIFS under the supervision of **Prof. L. Jayasinghe,** and **Prof. N.K.B. Adikaram** since 2022-02-07.

7. Ms. T. D. A. D.K. Kulathunge, M.Sc. student of the University of Kelaniya is conducting the M.Sc. research project in the research area of "Natural products" at the NIFS under the supervision of **Prof. L. Jayasinghe** since 2022-04-01.

8. Mr. D.A.N.C. Obeysekera, M.Sc. student of PGIS, University of Peradeniya is conducting the M.Sc. research project in the research area of "Nanoscience and nanotechnology" at the NIFS under the supervision of **Prof. G.R.A. Kumara,** and Prof. R.M.G. Rajapakse since 2018-04-02.

9. Mr. H.W. Gardiarachchi, M.Sc. student of the University of Peradeniya is conducting the M.Sc. research project in the research area of "Dye-sensitized solar cells" at the NIFS under the supervision of **Prof. G.R.A. Kumara,** and Prof. R.M.G. Rajapakse since 2021-10-21.

10. Ms. H.A.C. Dias, M.Sc. student of the University of Peradeniya is conducting the M.Sc. research project in the research area of "Medical Microbiology" at the NIFS under the supervision of **Dr. R. Liyanage** since 2022-10-04.

11. Mr.G.P.R.D. Pathirana, M.Sc. student of the University of Peradeniya is conducting the M.Sc. research project in the research area of "Molecular biology and biotechnology" at the NIFS under the supervision of **Prof. G. Seneviratne** since 2022-09-01.

12. Mr. S.N.B. Ekanayake, M.Sc. student of the the University of Peradeniya is conducting the M.Sc. research project in the research area of "Soil carbon sequestration" at the NIFS under the supervision of **Prof. G. Seneviratne** since 2022-10-01.

13. Ms. A.M.A.M. Abeysinghe, M.Sc. student of the University of Peradeniya is conducting the M.Sc. research project in the research area of "Geothermal" at the NIFS under the supervision of **Prof. N.D. Subasinghe** since 2020-12-01.

14. Ms. S.B.A.D.Y. Jayawardena, M.Sc. student of the University of Peradeniya is conducting the M.Sc. research project in the research area of "River networks" at the NIFS under the supervision of **Prof. N.D. Subasinghe** since 2020-10-30.

15. Ms. A. E. Amarasekera, M.Sc. student of the Postgraduate Institute of Peradeniya is conducting the M.Sc. research project in the research area of "Membrane Development" at the NIFS under the supervision of **Prof. R. Weerasooriya** since 2021-01-15.

B. Sc Undergraduate Industrial Training in Progress

1. Mr. T. Kumaresh from University of Colombo conducting the Industrial Training at NIFS under the supervision of **Dr. L. Jayarathna** since 2022-06-15.

2. Ms. J.M.U.S. Wijenayake, Undergraduate student of the Sabaragamuwa University of Sri Lanka is conducting a research project in the research area of "Food Chemistry" at the NIFS under the supervision of **Prof. J.M.N. Marikkar** since 2022-11-08.

3. Ms. R.H.M.S.Y. Udangamuwa from the Sri Lanka Institute of Information Technology conducting the Industrial Training at NIFS under the supervision of **Prof. D.N. Magana-Arachchi** since 2022-11-08.

4. Ms. Y.U. Jayaweera from Sri Lanka Institute of Information Technology conducting the Industrial Training at NIFS under the supervision of **Prof. D.N. Magana-Arachchi** since 2022-11-08.

5. Ms.A.M.U. Athauda from University of Kelaniya conducting the Industrial Training at NIFS under the supervision of **Prof. D.N. Magana-Arachchi** since 2023-01-02.

6. Ms. W.A.B.M. Samarajeewa from Sri Lanka Institute of Information Technology (SLIIT) conducting the Industrial Training at NIFS under the supervision of **Prof. R.R. Ratnayake** since 2022-11-08.

7. Mr. D.M.N.B. Dissanayake from Bangalore University, India conducting the Industrial Training at NIFS under the supervision of **Prof. R.R. Ratnayake** since 2022-12-01.

8. Ms. W.A.B.M. Samarajeewa from Sri Lanka Institute of Information Technology (SLIIT) conducting Industrial Training at NIFS under the supervision of **Prof. R.R. Ratnayake** since 2022-11-08.

B. Sc Undergraduate projects in progress

1. Ms. L.S.H.S. Mayandi, undergraduate student of the Sabaragamuwa University is conducting the research project in the research area of "Environmental Science" at the NIFS under the supervision of **Dr. L. Jayarathna,** and Dr. S.S.R.M.D.H.R. Wijesekara since 2022-11-17

2. Ms. S.M. Sooriarachchi, undergraduate student of the Sabaragamuwa University of Sri Lanka is conducting the research project in the research area of "Environment Science" at the NIFS under the supervision of **Dr. L. Jayarathna,** Prof. S.K. Gunathilake, Dr. S.S.R.M.D.H.R. Wijesekara, and Dr. N.S. Wanniarachchi since 2022-11-17.

3. Ms. H.M.C.K. Herath, undergraduate student of the Open University of Sri Lanka is conducting the research project in the research area of "Natural products" at the NIFS under the supervision of **Prof. L. Jayasinghe,** and Dr. S. Rodrigo since 2022-06-02.

4. Ms. W.A.D.S. Wijesinghe, undergraduate student of the Open University of Sri Lanka is conducting the research project in the research area of "Natural Products" at the NIFS under the supervision of Rodrigo, S., and **Prof. L. Jayasinghe** since 2022-12-13.

5. Ms. K.V.D. Madhuwanthi, undergraduate student of the University of Peradeniya is conducting the research project in the research area of "Dye-Sensitized Solar Cells" at the NIFS under the supervision of **Prof. G.R.A. Kumara,** and Dr. T.J.D. Abeysekera since 2022-12-01.

6. Ms. R.P.N.S. Randeni, undergraduate student of the Open University of Sri Lanka is conducting the research project in the research area of "Food Chemistry" at the NIFS under the supervision of **Prof. J.M.N. Marikkar** since 2022-07-10.

7. Ms. I. Zahir, undergraduate student of the Institute of Chemistry, Ceylon is conducting the research project in the research area of "Food Chemistry" at the NIFS under the supervision of **Prof. J.M.N. Marikkar** since 2022-09-12.

8. Ms. J.M.U.S. Wijenayake, undergraduate student of the Sabaragamuwa University of Sri Lanka is conducting the research project in the research area of "Food Chemistry" at the NIFS under the supervision of **Prof. J.M.N. Marikkar** since 2022-11-08.

9. Ms. L.R.M.K. Nithini Liyadipitiya, undergraduate student of the University of Sri Jayawardhanapura is conducting the research project in the research area of "Food Chemistry" at the NIFS under the supervision of **Prof. J.M.N. Marikkar** since 2022-11-21.

10. Ms. H.P. Dayananda, undergraduate student of the South Eastern University of Sri Lanka is conducting the research project in the research area of "Microbiology" at the NIFS under the supervision of **Prof. R.R. Ratnayake** since 2022-08-15.

11. Ms. S. Hemachandra, undergraduate student of the College of chemical sciences is conducting the research project in the research area of "Environmental Science" at the NIFS under the supervision of **Prof. R. Weerasooriya,** and Prof. N. Priyantha since 2022-06-08.

12. Ms. S. Ariyathilake, Undergraduate student of the Institute of Chemistry Ceylon is conducting the research project in the research area of "Environmental Science" at the NIFS under the supervision of **Prof. R. Weerasooriya,** and Prof. N. Priyantha since 2022-06-22.

13. Mr. N. Rajanayake, Undergraduate student of the Faculty of Agriculture, University of Peradeniya is conducting the research project in the research area of "Floristic information of Sri Lanka" at the NIFS under the supervision of **Prof. D.S.A. Wijesundara** since 2022-11-01.

Training as Volunteer Research Assistants

1. Ms. T. Hettiarachchi is training as a Research student in the research area of Primate Biology at NIFS under the supervision of **Prof. W.P.J. Dittus** since 2020-09-28.

2. Ms. A.N. Gunathilake is training as a Research student at NIFS in the research area of "Natural Products" under the supervision of **Prof. L. Jayasinghe,** and **Prof. N.K.B. Adikaram** since 2022-12-06.

3. Mr. J.A.S.U. Gunawardena is training as a Research student at NIFS student of The Open University of Sri Lanka is conducting the research project in the research area of "Nutritional Biochemistry" at the NIFS under the supervision of **Dr. R. Liyanage** since 2022-08-08.

4. Mr. W.M.K.K. Walisinghe is training as a Research student at NIFS in the research area of "Nutritional Biochemistry" under the supervision of **Dr. R. Liyanage** since 2022-10-04.

5. Ms. K.S. Dissanayake was trained as a research student in the research area of Soil Chemistry at NIFS under the supervision of **Prof. R.R. Ratnayake** since 2022.04.10.

6. Ms. V. Devaraj is training as a Research student at NIFS in the research area of "Fractal Analysis" under the supervision of **Prof. N.D. Subasinghe** since 2022-08-01.

7. Mr. Z. Wu is training as a Research student at NIFS student of the Postgraduate Institute of Science Peradeniya is conducting the research project in the research area of "Water Chemistry" at the NIFS under the supervision of **Prof. R. Weerasooriya,** Dr.C. Jayasundara, and Dr. Xing Chen since 2019-08-26.

8. Ms. N. Mudannayake is training as a Research student at NIFS student of the Institute of Chemistry Ceylon is conducting the research project in the research area of "Water" at the NIFS under the supervision of **Prof. R. Weerasooriya** since 2022-10-03.

9. Mr. I.D.U.H. Piyathilake is training as a Research student in the research area of Hydrogeochemistry/ Assessing hydrogeochemistry of Groundwater in Netiyagama, Sri Lanka at NIFS under the supervision of **Prof. R. Weerasooriya** since 2022-11-08.

10. Mr. C.L. Jayaweera is training as a Research student at NIFS student of the University of Peradeniya is conducting the research project in the research area of "case study on water treatment plant using nano and reverse osmosis membranes for water desalination" at the NIFS under the supervision of **Prof. R. Weerasooriya** since 2023-08-25.

AWARDS & RECOGNITIONS 2022

Awards & Recognitions – 2022

Awards:

Lifetime Fellow of the National Academy of Sciences, Sri Lanka
Prof. M.A.K.L. Dissanayake

Life Time Fellow of the Institute of Physics, Sri Lanka
Prof. M.A.K.L. Dissanayake

International Competitive Award for Georg Forster Research Award
Prof. S.P. Benjamin

Fellowship by the Chinese Academy of Sciences (The CAS President's International Fellowship Initiative, PIFI) from 2022-08-30 to 2023-04-30.
Prof. J. Bandara

International Award for Scientific consultant for BBC Natural World documentary films
Prof. W.P.J. Dittus

SLIC Gold Medal for the invention of a clay filter for the removal of Fluoride, Arsenic, and Cadmium from drinking water
Dr. L. Jayarathna

National Award for OUSL Research Award
Prof. G.K.R. Senadeera

Best Presenter:

Best oral presenter of the biological sciences category (8th Symposium of B.Sc. (Honours) Degree in Applied Sciences) from the Faculty of Applied Sciences, University of Sri Jayewardenepura
Ms. W. M. C. S. Weerasinghe

Best Performer - In-Plant training from the Department of Agribusiness Management, Wayamba University of Sri Lanka
Ms. T.M.P.K. Tennakoon

1st runner-up - poster presentation under the theme of food quality, safety, and product development from the University of Peradeniya
Ms. R.A.U. Chandraprabha – Nutritional Biochemistry

Second Runner-Up - poster presentation - session on Technological Interventions and Applications in Agriculture. Agriculture Research Symposium
Ms. J. K. T. Nirmani – Environmental Science

Best oral presenter of the 78th Annual Sessions of Sri Lanka Association for the Advancement of Science (SLAAS) 2022 -Section A, Titled "Urinary annexin A3 and neutrophil gelatinase-associated lipocalin: Potential diagnostic biomarkers for diabetic nephropathy"
Ms. S. Saseevan – Molecular Microbiology & Human Diseases

Most outstanding Researchers - 2021/ NIFS:

Prof. L. Jayasinghe - Senior Research Professor Category
Prof. M.A.K.L. Dissanayake - Research Professor Category
Prof. D.N. Magana-Arachchi - Associate Research Professor Category
Dr. I.P.L. Jayarathna - Research Fellow / Senior Research Fellow Category

3 Minute Thesis competition

3 Minute Thesis competition - People's Choice award - Young Researcher's Forum, Post Graduate Institute of Science
Ms. J.C. Kalinga – Natural Products

Recognitions:

Prof. M.A.K.L. Dissanayake received the ranking among the top 2% of researchers in the world from Standard University, United States.

Prof. N.K.B. Adikaram received the Dedication of a new fungal species from the University of Sri Jayewardenepura

Prof. W.P.J. Dittus Chief Guest for Annual Academic Sessions 2022 of Rathnapura Clinical Society

Dr. R. Liyanage was an evaluator for 'NUTRICON 2022' - The International Institute of Knowledge Management

Dr. R. Liyanage was a Resource person – at the 3MT Awareness Session -Young Researchers' Forum Postgraduate Institute of Science

Reviewer in Reviewing a Manuscript for Journal Publication / Conference:

Prof. J. Bandara
Solar RRL, Journal of Materials Science: Materials in Electronics, Catalysis Science and Technology, Chemical Engineering Journal, ACS ES&T Engineering, ACS Applied Materials & Interfaces, Solar Energy materials and solar cell, Solar Energy, Electrochimica Acta, Journal of Colloid Science, Advanced Materials, Journal of American Chemical Society Postgraduate Institute of Science-Research Congress (RESCON), Young Scientists' Conference on Multidisciplinary Research (YSCMR), NIFS

Prof. S.P. Benjamin
Arthropod Systematics & Phylogeny

Prof. M.A.K.L. Dissanayake
Power Sources, Electrochimica Acta, Materials Today: Proceedings, Materials Chemistry and Physics
Solar Energy, Solid State Ionics

Prof. W.P.J. Dittus
Amazon Book Reviews - Amazon.com, Primates, American Journal of Primatology

Prof. G.R.A. Kumara
International Journal of Energy Research, Journal of Materials Science, Journal of Alloy Compounds

Dr. R. Liyanage
Tropical Agricultural Research, Ceylon Journal of Science, ACS Food Science & Technology
Young Scientists' Conference on Multidisciplinary Research (YSCMR), NIFS, Abstract/s submitted for the Annual Scientific Sessions of the NSSL-2023, ICDA International Conference on Dry Zone Agriculture

Prof. D.N. Magana-Arachchi
Journal of Environmental Pollution, Air Quality, Atmosphere & Health, an International Journal, Environmental Research, Groundwater for Sustainable Development, Journal of Medical Microbiology, Postgraduate Institute of Science-Research Congress (RESCON), Young Scientists' Conference on Multidisciplinary Research (YSCMR), NIFS.

Prof. R.R. Ratnayake
Agronomy and Soil Science, Journal of Phycology, Journal of Agriculture, Journal of Sustainability, Ecological Indicators, Ceylon Journal of Science, Journal of Rhizosphere, Land Degradation & Development, Postgraduate Institute of Science-Annual Research Congress (RESCON 2022), ICDA International Conference on Dry Zone Agriculture, Young Scientists' Conference on Multidisciplinary Research (YSCMR), NIFS.

Prof. N.D. Subasinghe
Journal of the National Science Foundation of Sri Lanka, Journal of the Geological Society of Sri Lanka, Journal of Engineering Technology (JET), OUSL of Sri Lanka, Postgraduate Institute of Science-Research Congress (RESCON)

Prof. R. Weerasooriya
Water Air Soil Pollution, Materials Chemistry and Physics, Journal of Water Process Engineering

Prof. D.S.A. Wijesundara
Conference paper for Sri Lanka Institute of Information Technology

Serving in Committees

Prof. J. Bandara
Member of the SC on Research & Development on Cost Efficient Energy Sources and Storage, NSF

Prof. M.A.K.L. Dissanayake
Deputy Project Director of the Edu-Training project on Prototype manufacturing of thin film solar cells at the Ministry of Technology and Innovation
Member of the Steering Committee on R&D Cost Efficient Energy Storage, Research Arm of NSF

Prof. M.C.M. Iqbal
Member of the Board of Study in Crop Science at Postgraduate Institute of Agriculture, University of Peradeniya

Prof. D.N. Magana-Arachchi
Committee member for Drafting Sri Lanka Standard for Biofertilizers at Sri Lanka Standards Institution
Member of the Research Management Committee (RMC) at the Ministry of Education

Prof. R.R. Ratnayake
Member of Working Group Committee (WGC) on Fertilizer Test Methods at Sri Lanka Standards Institution (SLSI)
Committee on Development of Ecosystem Services Indicators & Guidelines at Central Environmental Authority
Member of the Board of study in Biochemistry & Molecular Biology at Postgraduate Institute of Science, University of Peradeniya

Prof. N.D. Subasinghe
Co-Chair, Organizing Committee – 40th Anniversary of NIFS
Committee member on NSF-NTRP Steering Committee on Oceanography & Marine Sciences
Member of the CEA Group for Ecosystem Services and Guidelines for Environmental Assessment in Sri Lanka

Journal Editor / Editorial committee

Prof. N.K.B. Adikaram
Editor-in-chief at Young Scientist's Conference on Multidisciplinary Research (YSCMR)

Prof. J. Bandara
Frontiers in Chemistry
Progress in Photovoltaic

Prof. M.A.K.L. Dissanayake
Editor-in-Chief, Ceylon Journal of Science at University of Peradeniya
Member of the Editorial Board from Ceylon Journal of Science
Editorial Advisory Board, "Gaveshana" magazine

Dr. R. Liyanage
Section Editor for YSCMR Young Scientists' Association, NIFS, peer review the abstracts.

D.S.A. Wijesundara
Editor in Chief of ***Sri Lankan Journal of Biology***, published by the Institute of Biology Sri Lanka
Editorial Board Member of ***Wildlanka Journal***, published by the Wildlife Department
Editorial Board Member of ***Sri Lanka Journal of Food and Agriculture***, published by the Sri Lanka Council for Agriculture Research Policy
Member of the Editorial Advisory Committee of Rheedia (Journal of the Indian Association for Angiosperm Taxonomy) since 2013
Associate Editor, MycoAsia, Journal of Modern Mycology

Moderator/ Evaluator/ Examiner

Moderator:

Dr. R. Liyanage
Department of Biosystems Technology, University of Jaffna

Examiner:

Prof. J. Bandara
M. Phil. Thesis in University of Peradeniya

Prof. M.A.K.L. Dissanayake
Ph.D. Thesis University of Malaya, Kualalumpur, Malaysia
M.Phil Thesis in PGIS, University of Peradeniya
M.Phil Thesis in University of Jaffna
M.Phil Thesis in University of Kelaniya

Dr. L. Jayarathna
Ph.D. Thesis examiner, SLINTEC

Dr. R. Liyanage
BSc - Grain Science and Technology, Department of Biosystems Technology, University of Jaffna (2)

Prof. D.N. Magana-Arachchi
M.Sc. Thesis at Postgraduate Institute of Science, University of Peradeniya
M.Phil. Thesis at Faculty of Medicine, University of Colombo

Prof. R.R. Ratnayake
Ph.D. Thesis at University of Madras, India
BSc - Final Research Session, Faculty of Agriculture, University of Jaffna

Prof. N.D. Subasinghe
M. Phil. Thesis Faculty of Graduate Studies, University of Sri Jayawardenapura

Prof. R. Weerasooriya

M.Sc. Degree in University of Peradeniya
M.Phil. Thesis in Sabaragamuwa University of Sri Lanka. (2)
Ph.D. Thesis in University of Peradeniya (2)

D.S.A. Wijesundara
M.Sc. Thesis in University of Colombo

Evaluator:

Prof. J. Bandara
Evaluator for NRC Research Grant.
Evaluator for Research Fellowship given by AvH Foundation Germany

Prof. M.A.K.L. Dissanayake
Evaluator for NRC Panel No. 4 on Nanotechnology and Chemical Sciences for Investigator-driven grants
Evaluator for Final Progress reports of NRC Grant NRC
Evaluator for Annual Progress Reports of NRC Grants Evaluator for PGIS Research Grants
Evaluator of Academic and Research contributions for the merit promotion of the University of Kelaniya
Evaluator of Academic and Research contributions for the merit promotion of the University of Ruhuna

Prof. W.P.J. Dittus
Primate Conservation
Smithsonian Online Academic Appointments (SOLAA)

Dr. R. Liyanage
4th International Conference on Food, Nutrition, Health, and Lifestyle, the International Institute of Knowledge Management
International Conference on Food, Nutrition, Health, and Lifestyle

Prof. D.N. Magana-Arachchi
Evaluator for Presidential Awards for Inventions
Assessor (SLAB) of Microbiology testing

Prof. R.R. Ratnayake
Evaluator for National Research Council Progress Report

Prof. N.D. Subasinghe
Evaluator for NRC Research grant
Evaluator for NSF Research grant
Member of evaluation panels of the PGIS. University of Peradeniya

Prof. D.S.A. Wijesundara
National Research Council Progress reports (2)

TRAINING & PARTICIPATION

Participation

1. **Prof. M.A.K.L. Dissanayake** Participated at an International Programme on *Research visit for collaborative research on solar cells* from 2022-09-24 to 2022-10-03 at University of Gothenburg, Sweden.

2. **Ms. H.H. Hettiarachchi** Participated at an International Programme on *Primate Biology; dental development of toque macaques (Macaca sinica)* from 2020-09-28 to 2023-09-27 at Association for the Conservation of Primate Diversity.

3. **Ms. T. Kulangana** Participated at a Workshop on *25th Workshop (Online) on Scientific Writing* from 2022-12-10 to 2022-12-18 at Webinar.

4. **Ms.T. Kulangana** Participated at a National Conference on *RESCON22* from 2022-10-28 to 2022-10-30 at Webinar.

5. **Prof. G.R.A. Kumara,** Mr. A.D.T. Medagedara, Mr. S.M.B. Dissanayake, Mr.H.W. Gardiarachchi, and Mr. B.C. Karunarathna Participated at a National Exhibition on *Karmantha 2022* from 2022-02-03 to 2022-02-06 at Bandaranaike Memorial International Conference Hall.

6. **Dr. R. Liyanage,** Ms. I. Rathnayaka, and Ms. M. Wickramasinghe Participated at a National Workshop on *Patient and Public Involvement and Engagement (PPIE) in the Ethical Design of Research* on 2022-11-29 at Faculty of Medicine, University of Colombo.

7. **Prof. D.N. Magana-Arachchi,** Ms. S. Gunathilaka, Ms. S. Saseevan, Ms. W.R.U.A. Bandara participated at a National Workshop on *Intellectual Property and Commercialization* on 2022-09-09 at the National Institute of Fundamental Studies.

8. **Prof. D.N. Magana-Arachchi**, Ms. W.R.U.A. Bandara, Ms. S. Gunathilaka, Ms. S. Saseevan, participated at a National Workshop on *Patient and Public Involvement and Engagement in the Ethical Design of Research* on 2022-11-22, at Faculty of Medicine, University of Colombo. Webinar.

9. **Ms. T.M. Paranavithana** Participated at a National Workshop on *Effective Research Paper Writing* on 2022-08-20 at Webinar, University of Peradeniya.

10. **Prof. D.S.A. Wijesundara** Participated Small Group meeting on Sinharaja Landscape Management Plan (Forest Dept.).

11. **Prof. D.S.A. Wijesundara, Chairman** UNESCO Man and Biosphere (MAB) National Committee Meeting.

12. **Prof. D.S.A. Wijesundara** Participated Meeting on National Biodiversity Expert Committee (Environment Ministry).

13. **Prof. D.S.A. Wijesundara** Co-chair, National Invasive Species Specialist group meeting.

14. **Prof. D.S.A. Wijesundara** Participated Meeting on the re-location of *Crudia zeylanica* tree on the Colombo-Kandy expressway, chaired by the Secretary, Ministry of Highways.

15. **Prof. D.S.A. Wijesundara** Participated Environment Ministry Meeting on ratification of Nagoya protocol on Access and Benefit Sharing.

16. **Prof. D.S.A. Wijesundara** Participated Forest Department Meeting on Forestry Sector Master Plan.

17. **Prof. D.S.A. Wijesundara** Participated the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (*IPBES*) meeting (virtual) as a country representative.

18. **Prof. D.S.A. Wijesundara** Participated Virtual Meeting on Highland-Vijayan geo park with the UNESCO global geo park committee.

19. **Prof. D.S.A. Wijesundara** Participated National Committee meeting of the Floriculture Research and Development of Sri Lanka Council for Agriculture Research Policy.

20. **Prof. D.S.A. Wijesundara** Participated Panel Discussion on Nature Based Solutions organized by the JRDC as a panellist.

21. **Prof. D.S.A. Wijesundara** Participated Expert committee meeting on Forestry Sector Master Plan held at SLIDA.

DISSEMINATION OF SCIENCE

Symposia:

1. *Annual* Research Review 2021" was organized by the Science Education and Dissemination Unit for the Scientific Community at the Professor CyrilPonnamperuma auditorium via zoom on 2022-03-30 with 75 participants. *Prof. M. D. Lamawansa, Vice-Chancellor, University of Peradeniya* graced the occasion as the chief guest.
   Resource Person: Keynote Address Prof. M. D. Lamawansa, Vice-Chancellor, University of Peradeniya

2. *"Young Scientists' Conference on Multidisciplinary Research (YSCMR) 2022"* was organized by the Young Scientists' Association of the National Institute of Fundamental Studies (NIFS-YSA). for the Scientific Community at the Professor Cyril Ponnamperuma auditorium via zoom in 2022-11-10 with 150 participants.
   Resource Persons: Prof. I.M. Dharmadasa, Professor at Sheffield Hallam University, UK,
   Prof. Samantha Karunarathna, Professor at the College of Biological Resource and Food Engineering at Qujing Normal University, China

Training programs:

1. *"One-day Training Programme on Ecotourism"* was organized by the Ministry of Environment in collaboration with NIFS and the Department of Trade, Commerce and Tourism, Central Province, with the support of UNDP and the EU in Sri Lanka for the General Public at the Dambulla Pophams Arboretum on 2022-06-02 with 80 participants.
   Resource Persons: Prof. Siril Wijesundara, Research Professor at NIFS and Prof. A.S.M. Aslam, Sabaragamuwa University, and Mr. Upali Rathnayake, Director of Sri Lanka Tourism Development Authority.

2. Zonal Training Programme: *"Provide the research facilities for conducting a Microbiology study for the Symposium organized by the Science Society of Kandy Girls' High School"* was organized by the Nutritional Biochemistry Research Project, NIFS for the School Community at the NIFS from 2022-10-18 to 2022-11-04 with 6 participants.
   Resource Persons: Dr. R. Liyanage, Ms. S.M.V.K. Sewwandi, Ms. M.A. Wickramasinghe, Ms. H.C. Dias, and Ms. I. Rathnayaka

Workshops:

A Series of workshops carried out by the Rhizobium project staff of the NIFS for farmers about the rhizobial inoculants

1. *"Demonstration of rhizobial inoculants for field officers and legume cultivating farmers"* was organized by the NIFS on 2022-12-23 with 15 participants.

2. *"Field demonstrations and awareness program in the use of rhizobial inoculants for field officers and legume cultivating farmers"* was organized by the NIFS at the Dambulla and Eppawala on 2022-09-30 with 150 participants.

3. *"Yield demonstrations and awareness program in the use of rhizobial inoculants for field officers and legume cultivating farmers"* was organized by the NIFS on 2022-12-23 with 15 participants.

4. *"Field demonstrations and awareness program in the use of rhizobial inoculants for field officers and legume cultivating farmers"* was organized by the NIFS at Dambulla and Eppawala on 2022-05-14 with 150 participants.

5. *Field demonstrations and awareness program in the use of rhizobial inoculants for field officers and legume cultivating farmers"* was organized by the NIFS at Kurunegala on 2022-02-24 with 200 participants.

6. *Field demonstrations and awareness program in the use of rhizobial inoculants for field officers and legume cultivating farmers"* was organized by the NIFS at Trincomalee on 2022-03-10 with 100 participants.

7. *"Field demonstrations and awareness program in the use of rhizobial inoculants for vegetable bean cultivating farmers"* was organized by the NIFS at Thalatuoya, Marassana and Padiyapalalla from 2022-02-02 to 2022-06-23 with 300 participants.

Workshops for the School Community:

1. *"Hands-on Experience in Taxonomy for Teachers/Educators"* was organized by the Plant Taxonomy and Conservation & Science Education and Dissemination Unit for the School Community at the Dambulla Pop ham Arboretum on 2022-02-15 with 30 participants. *Resource Persons: Mr. Himesh Jayasinghe and Prof. D.S.A. Wijesundara*

2. *"Science Carnival -EMMER'21 - Mahamaya Girls' College Science Day 2021"* was organized by the Science Education and Dissemination Unit jointly with Mahamaya Girls' College -Kandy for the School Community at the Mahamaya Girls' College Kandy on 2022-05-05 with 450 participants.
   Resource Person: Dr. Kumari Tilakaratne

3. *"Research workshop"* was organized by the Science Education and Dissemination Unit jointly organized by Mahamaya Girls' College -Kandy for the School Community at the Mahamaya Girls' College -Kandy on 2022-08-25 with 600 participants.
   Resource Person: Dr. Kumari Tilakaratne

4. *"Inculcating science in young minds", a* workshop organized by the Science Education and Dissemination Unit for the School Community at the Katugastota Ambatanna Pushpadana Vidyalaya. on 2022-10-27 with 80 participants.
   Resource Person: Dr. Kumari Tilakaratne

Lab Visits:

1. Thirty A/L students from Gampola Wickramabahu National School visited the NIFS to visit the Material Processing and Device Fabrication Lab, Condensed Matter Physics and Solid-State Chemistry Lab, Microbiology and Soil Ecosystems Lab, Environmental Science Lab laboratories on 2022-12-22.
   Resource Persons: Prof. G.R. A. Kumara, Prof. M.A.K.L. Dissanayake, Prof. R Ratnayake, and Prof. R. Weerasooriya

2. Seventy-seven A/L students from Janadhipathi Balika Vidyalaya - Galle vied to the NIFS to visit the Microbiology and Soil Ecosystems Lab, Environmental Science Lab, Nanotechnology and Physics of Materials lab, Material Processing and Device Fabrication lab laboratories on 2022-12-09.
   Resource Persons: Prof. R. Rathnayake, Prof. R. Weerasooriya, Dr. A. Wijayasinghe, and Prof. G.R.A. Kumara

Exhibitions:

1. National Exhibition: *"Organic agriculture"* was organized by the NIBM and NIFS for the General Public at the Kurunegala from 2022-12-23 to 2022-12-24 with 10,000 participants.
   Resource Persons: MBU and rhizobium project staff.

2. National Exhibition: *"NIFS Open Day 2022"* was organized by the National Institute of Fundamental Studies for the School Children & General Public at the NIFS from 2022-10-13 to 2022-10 -14 with 2260 participants.
   Resource Persons: NIFS Staff

Special Lectures:

1. *"Monitoring Soil Organic Carbon: Yes, It's Important!"* was organized by the SEDU for the Scientific Community at the Professor Cyril Ponnamperuma auditorium via zoom on 2022-11-18 with 30 participants.
   Resource Person: Dr. Senani Karunaratne (Senior Research Scientist for the CSIRO Agriculture and Food and leads the Carbon Accounting and Functions team).

2. *"Fermat's Last Theorem"* was organized by the SEDU for the Scientific Community at the Small Auditorium on 2022-10-05 with 25 participants.
   Resource Person: Mr. D.I. Arunasiri

3. *"Basic science during Crisis"* was organized by the SEDU for the Scientific Community at the Professor Cyril Ponnamperuma auditorium and via zoom on 2022-09-28 with 40 participants.
   Resource Person: Vidya Jothi Emeritus Professor Sarath W. Kotagama

4. *"The Role of Science in Sri Lanka's Rise from Ashes"* was organized by the SEDU for the Scientific Community at the Professor Cyril Ponnamperuma auditorium and via zoom on 2022-07-26 with 250 participants.
   Resource Person: Dr. Rohan Pethiyagoda

5. *"Cold Plasma Technology and its Applications"* was organized by the SEDU for the Scientific Community at the Professor Cyril Ponnamperuma auditorium and via zoom on 2022-04-27 with 33 participants.
   Resource Persos: Dr. Janith Weerasinghe Research Advisor, BudMore Pty Ltd, Australia.

6. *"Ecosystem Valuation for Environmental Assessment"* was organized by the SEDU for the Scientific Community at the Professor Cyril Ponnamperuma auditorium and via zoom on 2022-03-23 with 30 participants.
   Resource Person: Dr. Ajith Gunawardena Deputy Director (Research and Development), Central Environmental Authority.

Science Dissemination through Electronic Media:

1. "තිරසාර සංවර්ධනය සඳහා මූලික විද්‍යාව පිළිබඳ අවධාරණය කරමින් ලෝක විද්‍යා දිනයට සමාගාමීව ජාතික මූලික අධ්‍යයන ආයතනයේ මහාචාර්යවරු තිදෙනෙකු සමග පවත්වන ලබන වැඩසටහන" was organized by the SEDU for the General Public at the Kadurata FM on 2022-11-10.
   Resource Persons: Prof. S. Kodituwakku, Prof. M.A.K.L. Dissanayake, and Dr. Shalini Rajakaruna

2. The *"Science week video" series was organized by the SEDU for the General Public at the NIFS from* 2022-11-11 to 2022-11-18. Twenty-eight NIFS Research Assistants from the *Earth Resources and Renewable Energy, Molecular Microbiology, and Human Diseases, Condensed Matter Physics, and Solid-State Chemistry* programmes contributed as resource persons.
   Resource Persons: Ms. E. Herath, Ms. J. Kalinga, Ms. T. Bowanage, Mr. C. Wijerathne, Ms. M. Thilakarathne, Ms. M. Abeysinghe, Ms. S. Gunathilaka, Ms. T Paranawithana, Ms. U Bandara, Ms. U. Siriwardena, Ms. S. Bandara, Ms. S. Saseevan, Ms. K. Sewwandi, Ms. N. Herath, Ms. M. Wikramasinghe, Ms. H. Nadeeshani, Ms. K. Samarakoon, Ms. N Atapattu, Ms. L. Samarasena, Ms. K. Thevendraraja, Mr. N. Gayan, Mr. A. Madagedara, Ms. I. U. Weerasinghe, and Ms. M. Perera

3. *"Short video competition 2022 on Basic Research for Sustainability of Sri Lanka"* was organized by the SEDU for the Scientific Community at the NIFS on 2022-08-31 with 20 participants.

Dissemination through International Documentaries:

4. Kyoto University Primate Research Institute, Center for International Collaboration and Advanced Studies in Primatology (Producer), Huffman, M (Director). (2022). *Toque macaques: windows to primate life history and conservation* [YouTube multimedia]. Japan and Sri Lanka: You-Tube.
   Resource Person(s) from NIFS: Prof. W.P.J. Dittus

5. Humblebee Films (Producer), Cryer, S. (Director). (2022). *Wild Babies, episode #6 "Finding your Place"* [TV programme]. Sri Lanka: Netflix.
   Resource Person(s) from NIFS: Prof. W. P. J. Dittus

6. Sally Cryer, HumbleBee Pictures (Producer), Sally Cryer (Director). (2022). *Born Wild series, Toque Macaques of Sri Lanka episode* [TV Programme, Multimedia]. Sri Lanka: Humble Bee Pictures.
   Resource Person(s) from NIFS: Prof. W.P.J. Dittus

Dissemination through printed media:

1. **Dissanayake, M.A.K.L.** (2022-04-01), Global trends and challenges in the utilization of solar energy. *Gaveshana* p.40-43.

2. **Magana-Arachchi, D.N.** (2022-06-05), Air Pollution and Respiratory Tract Infections. *The Sunday Times* p.15.

3. **Magana-Arachchi, D.N.** (2022-06-05), වායු දූෂණය සහ ශ්වසන පද්ධතියේ ආසාදන. *Silumina (සිළුමිණ)* p.05.

4. **Subasinghe, N.D.** (2022-12-05), භූ තාප ශක්තිය අපේ රටේ බලශක්ති අවශ්‍යතාව සඳහා යොදා ගත හැක්කේ මෙහෙමයි. *ගවේෂණ* p.30-33.

5. **Wijesundara, D. S. A.** (2022-08-01), Allow nature to restore degraded ecosystems: a plea for assisted natural regeneration. *Planta* p.17-19.

Invited Speeches:

1. **Dittus, W.P.J.** (2022). *Primate sociobiology and conservation*. Invited Speech, Front Royal, VA & Washington, DC, USA.

2. **Dittus, W.P.J.** (2022). *Humans' primate ancestry is relevant to our present-day social, economic & physical health"*. Invited Speech, Rathnapura.

3. **Jayarathna, L.** (2022). *Scientific Research for Students*. Special Lecture, Kingswood College Kandy.

4. **Magana-Arachchi, D.N.** (2022). *Air pollution and Respiratory tract infections*. Invited Speech.

5. **Seneviratne, G.** (2022). *Engineered microbial biofilms as soil ameliorators for agriculture and plantations: a global solution*. Invited Speech, Faculty of Technology, University of Sri Jayewardenepura, Pitipana, Homagama, Sri Lanka.

6. **Seneviratne, G.** (2022). *How do engineered microbial biofilms benefit ecosystems and the environment?* (Keynote)

7. **Subasinghe, N.D.** (2022). *Discussion on Renewable Energy*. Presentation, Kandurata Radio Channel.

8. **Subasinghe, N.D.** (2022). *Geothermal Energy in Sri Lanka*. Invited Speech, Geological Society of Sri Lanka.

9. **Subasinghe, N.D.** (2022). *Geothermal Energy Potential in Sri Lanka*. Invited Speech, University of Colombo, Sri Lanka.

10. **Subasinghe, N.D.** (2022). *Biodiversity and Renewable Energy - Friends or Foes?*. Presentation, Oak Ray Regency, Kandy, Sri Lanka.

11. **Weerasooriya, R** (2022). *Co-Chair – 13th International Conference on Sustainable Built Environment – CKDu Chapter, Sri Lanka 17-12-2022*. Presentation, Sri Lanka.

12. **Weerasooriya, R.** (2022). *Session Chair-9 th Annual Research Congress-RESCON 2022 International Conference PGIS University of Peradeniya*. Presentation, zoom.

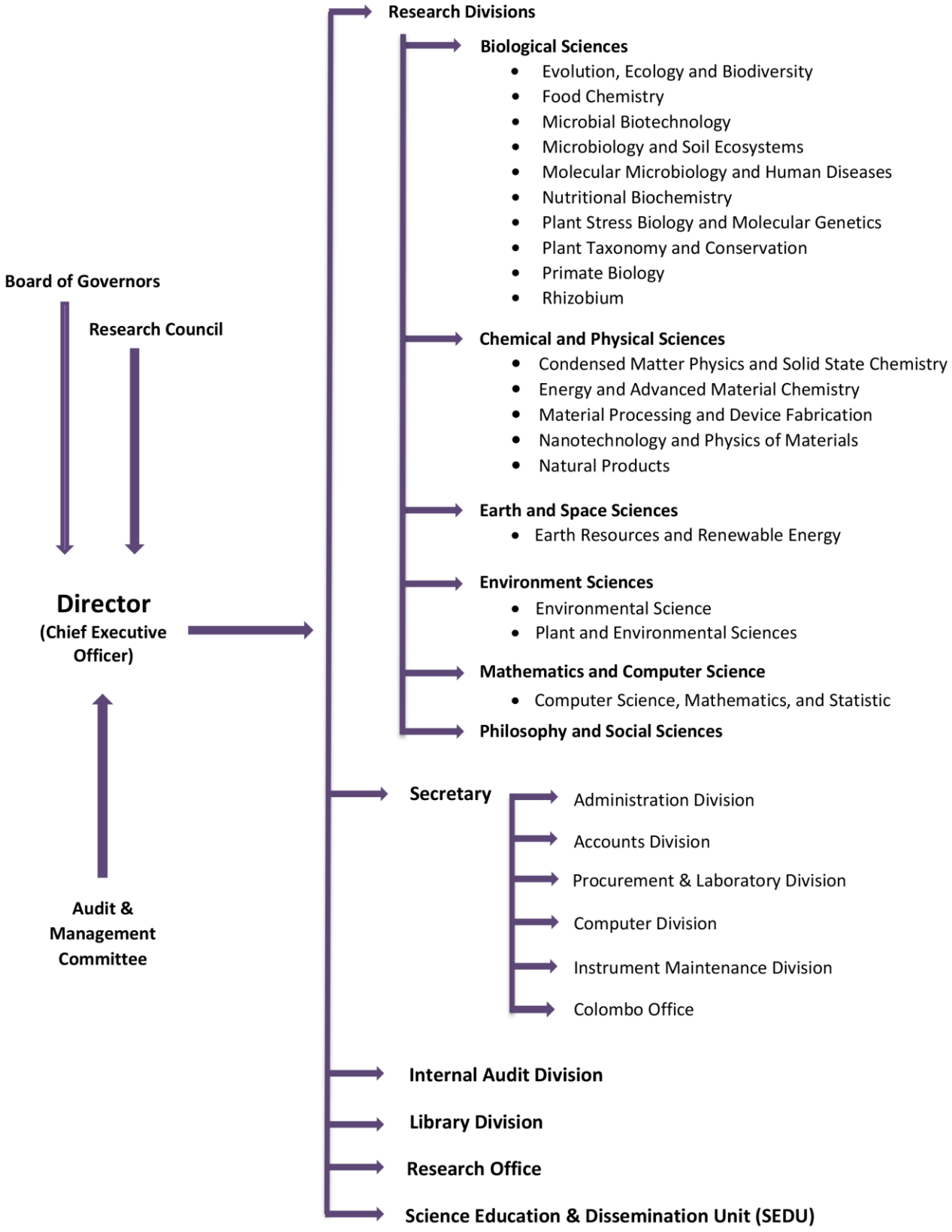
13. **Weerasooriya, R.** (2022). *Collaborative Laboratory Development-Round Table Discussion on International Project University of Peradeniya*. Invited Speech, ZOOM.

14. **Weerasooriya, R.** (2022). *Water Desalination Systems in Sri Lanka - Paradigm Shift Solution*. Plenary, EGPYT.

15. Wu, Weragoda, S.K., Jayasundara, A.C.A., Wei, Y, Chen, X, and **Weerasooriya, R.** (2022). *SMARTPHONE controlled water desalination system - A paradigm shift solution for water stress in Sri Lanka*. Keynote, Egypt.

SECTION 3-ORGANIZATION

ORGANIZATIONAL CHART



BOARD OF GOVERNORS

A twelve-member Board of Governors administers NIFS with Prof. Athula Sumathipala as the Chairman. The Board administers the institute. The Board makes rules for the procedures in the conduct of its affairs.

Prof. Athula Sumathipala
Chairman
Appointed by H.E., the President

The Advisor to the President on Scientific Affairs
Ex-officio Member (Vacant)

Senior Professor S. Amaratunge
Chairman
University Grants Commission
Ex-officio Member

Prof. Ranjith Premalal De Silva
The Acting Director/NIFS
(From 01.05.2021 to 30.04.2022)

Prof. Saluka R. Kodithuwakku
The Director/NIFS
(From 1st May 2022)
Ex-officio Member

Dr. W. Sardha Hemapriya
Obstetrician & Gynecologist
Appointed by H.E., the President

Prof. S.B.S. Abayakoon
University of Peradeniya
Appointed by H.E., the President

Dr. Yamuna Niranjalie Rajapakse
Lanka Hospital, Colombo
Appointed by H.E., the President

Prof. M.A.K.L. Dissanayake
Research Professor/NIFS
Appointed by the Minister

Eng. Nihal Rupasinghe
Appointed by the Minister

Prof. Siril Wijesundara
Research Professor/NIFS
Elected from the Research Council

Prof. Deepal Subasinghe
Associate Research Professor/NIFS
Elected from the Research Council

Ms. B.W.G.C.S. Bogahawatta
Additional Director General
Ministry of Finance
Treasury Representative

Ms. S.D.K. Mediwaka
Secretary to the Board
NIFS

RESEARCH COUNCIL

The Research Council, whose membership comprises university academics and researchers of the NIFS, served as an advisory body. The Research Council has control over the general direction of research and forwards its recommendations to the Board of Governors.

Chairman

- Prof. Saluka R. Kodithuwakku, Director/NIFS (From 1st May 2022)
- Prof. Ranjith Premalal De Silva, Acting Director/NIFS *(From 01.05.2021 to 30.04.2022)*

Members

Appointed by H.E the President

- Prof. W.C.S.J. Wickramasinghe, Department of Parasitology, Faculty of Medicine, University of Peradeniya (from 01st December 2021)
- Prof. W.A.J.M. De Costa, Department of Crop Science, Faculty of Agriculture, University of Peradeniya (from 01st December 2021)

Ex-Officio:

Senior Research Professors, Research Professors, Associate Research Professors, and Senior Research Fellows of the National Institute of Fundamental Studies

- Prof. J. Bandara, Senior Research Professor
- Prof. U.L.B Jayasinghe, Senior Research Professor
- Prof. G. Seneviratne, Senior Research Professor
- Prof. M.A.K.L. Dissanayake, Research Professor (on contract)
- Prof. S.P. Benjamin, Research Professor
- Prof. G.R.A. Kumara, Research Professor (on contract)
- Prof. R. Weerasooriya, Research Professor (on contract)
- Prof. D. S. A. Wijesundara, Research Professor (on contract)
- Prof. D.N. Magana-Arachchi, Associate Research Professor
- Prof. R.R. Ratnayake, Associate Research Professor
- Prof. N.D. Subasinghe, Associate Research Professor
- Prof. N. Marikkar, Associate Research Professor (on contract)
- Dr. R. Liyanage, Senior Research Fellow
- Dr. H.W.M.A.C. Wijayasinghe, Senior Research Fellow

Elected by the Research Fellows of the National Institute of Fundamental Studies

- Dr. I.P.L. Jayaratne, Research Fellow

Nominated by the University Grant Commission

- Prof. P. Ravirajan, Department of Physics, Faculty of Science, University of Jaffna
- Prof. Chandana P. Udawatte, Vice Chairman, University Grant Commission
- Prof. M. Vithanage, Office of the Dean, Faculty of Applied Sciences, University of Sri Jayewardenepura
- Prof. R.G.S.C. Rajapakse, Dean Faculty of Science, University of Peradeniya

STAFF LIST - 2022

Director	:	Prof. Saluka R. Kodithuwakku (from 01.05.2022)
Acting Director	:	Prof. Ranjith Premalal De Silva *(from 01.05.2021 to 30.04.2022)*
Secretary	:	Ms. Sagarika D. K. Mediwaka (from 12.02.2022)
Acting Secretary	:	Prof. Lalith Jayasinghe *(from 13.08.2022 to 11.01.2022)*

Research Staff

Senior Research Professors

Prof. Bandara J. M. S.
Prof. Jayasinghe U. L. B.
Prof. Seneviratne P. R. G.

Research Professors

Prof. Benjamin S. P.
Prof. Dissanayake M. A. K. L.
Prof. Kumara G. R. A.
Prof. Weerasooriya R.
Prof. Wijesundara D. S. A.

Associate Research Professors

Prof. Magana Arachchi D. N.
Prof. Marikkar N.
Prof. Rathnayake R. R.
Prof. Subasinghe N. D.

Senior Research Fellows

Dr. Liyanage N. L. B. R.
Dr. Wijayasinghe H. W. M. A. C.

Research Fellows

Dr. Jayarathne I. P. L.

Visiting Research Professor

Prof. Adikaram N.K.B.
Prof. Senadeera G.K.R.

Visiting Research Professor (Honorary)

Prof. Dittus W.P.J.
Prof. Kulasooriya S.A.
Prof. Vithanage M.S.

Visiting Scientist (Honorary)

Dr. Bowatte G.

Adjunct Professors (Honorary)

Lifetime Research Professors

Prof. Wickramasinghe C.
Prof. Tennakone K.

Other Adjunct Research Professors

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Prof. Chen X.
Prof. Dallavalle S.
Prof. Dharmadasa I. M.
Prof. Fujimoto Y.
Prof. Hirotsu N.
Prof. Ismail N. H.
Prof. Nammi S.
Prof. Karunaratne S.
Prof. Karunatane S.
Prof. Nikolai Kuhnert N.
Prof. Wijekoon P.
Prof. Wei Y.
Prof. Xu Z.

Research Assistants

Computer Science, Mathematics & Statistics Research Programme

Mr. Gunasekaran A.E.	NIFS Research Assistant Gr. II (from 08.11.2022)
Ms. Hettiarachchi H.C.	NIFS Research Assistant Gr. II (from 01.12.2022)

Condensed Matter Physics & Solid-State Chemistry Research Programme

Ms. Kumari J.M.K.W.	NIFS Research Assistant Gr. I (up to 30.04.2022)
Ms. Hettiarachchi M.S.H.	NIFS Research Assistant Gr. II
Mr. Umair K.	NIFS Research Assistant Gr. II (up to 30.04.2022)
Ms. Subasinghe J.L.	NIFS Research Assistant Gr. II (from 01.12.2022)
Ms. Sandamali W.I.	Grant Research Assistant

Earth Resources & Renewable Energy Research Programme

Ms. Abeysinghe A.M.A.M	NIFS Research Assistant Gr. II
Mr. Rathnayake R.A.	NIFS Research Assistant Gr. II
Ms. Thilakarathna M.P.	NIFS Research Assistant Gr. II
Mr. Abewardena P.	Grant Research Assistant

Energy & Advanced Material Chemistry Research Programme

Ms. Sarathchandra K.A.D.M.S.	NIFS Research Assistant Gr. II
Mr. Rajakaruna R.P.P.D.	NIFS Research Assistant Gr. II
Mr. Wijerathna A.G.C.N.	NIFS Research Assistant Gr. II
Mr. Sumithraarachchi S.A.D.A.V.	Grant Research Assistant

Environmental Science Research Programme

Air pollution & risk Management Research Project

Mr. Senaratna M.	Grant Research Assistant

Material Development & Pollutants Remediation Research Project

Mr. Amarasena R.A.L.R.	NIFS Research Assistant Gr. II
Ms. Perera M.D.R.	NIFS Research Assistant Gr. II

Water Research Project

Ms. Bandara P.M.C.J.	NIFS Research Assistant Gr. II
Ms. Amarasekara A.E.	NIFS Research Assistant Gr. II
Ms. Piyathilake I.D.U.H.	Grant Research Assistant

Evolution, Ecology & Biodiversity Research Programme

Mr. Dayananda D.N.G.	NIFS Research Assistant Gr. II (from 01.06.2022)

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Ms. Ulpatha Kumbura B.S.K.	NIFS Research Assistant Gr. II

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Ms. Weerasinghe M.I.U.	NIFS Research Assistant Gr. II (from 15.03.2022)

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Mr. Premarathna U.M.B.	NIFS Research Assistant Gr. I
Ms. Rathnathilake A.T.D.	NIFS Research Assistant Gr. II (up to 20.02.2022)
Mr. Ekanayake S.	NIFS Research Assistant Gr. II (from 01.08.2022)
Mr. Warnakulasooriya D.	Grant Research Assistant
Mr. Pathirana G.P.R.D.	Temporary Research Assistant (from 03.10.2022)

Microbiology & Soil Ecosystems Research Programme

Ms. Paranavithana T.M.	NIFS Research Assistant Gr. II
Ms. Bandara S.M.D.C.	NIFS Research Assistant Gr. II (from 22.12.2022)

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Ms. Bandara W.R.U.A.	NIFS Research Assistant Gr. II (up to 14/12/2022)
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Ms. Saseevan S.	Grant Research Assistant
Ms. Weerarathne W.B.C.P.	Grant Research Assistant (up to 07.04.2022)

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Mr. Fernando W.T.R.S.	NIFS Research Assistant Gr. II
Ms. Naranpanawa H.M.H.D.K.	NIFS Research Assistant Gr. II
Mr. Samarakoon I.B.	NIFS Research Assistant Gr. II

Natural Products Research Programme

Ms. Atapattu A.M.N.A.	NIFS Research Assistant Gr.
Ms. Kalinga J.C.	NIFS Research Assistant Gr. II
Ms. Siriwardhane K.D.P.U.	NIFS Research Assistant Gr. II
Ms. Alakolanga A.G.A.W. *	Grant Research Assistant
	* on leave from Uwa Wellasse University
Ms. Bandara H.M.S.K.	Grant Research Assistant
Ms. Samarakoon S.M.K.T.	Grant Research Assistant

Nutritional Biochemistry Research Programme

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Ms. Nadeeshani V.H.H.	NIFS Research Assistant Gr. II (up to 09.12.2022)
Ms. Wickramasinghe M.	NIFS Research Assistant Gr. II (from 20.12.2022)
Ms. Prasadini H. R. P.	NIFS Research Assistant Gr. II (from 20.12.2022)

Plant & Environmental Sciences Research Programme

Ms. Theivendrarajah K.	NIFS Research Assistant Gr. II

Plant Taxonomy & Conservation Research Programme

Mr. Jayasinghe H.D.	NIFS Research Assistant Gr. II
Mr. Lekamge P.L.C.U.S.B.	Acting Arboretum Manager
Mr. Brahmanage R.	Grant Research Assistant
Ms. Premaratne H.K.G.B.M.	Grant Research Assistant (from 01.10.2022)

Plant Stress Biology and Molecular Genetics Research Programme

Ms. Perera U.M.P.K.	NIFS Research Assistant Gr. II

Rhizobium Project Staff

Ms. Herath E.M.	NIFS Research Assistant Gr. II
Mr. Ekanayake E.M.H.G.S.	Research & Development Officer
Mr. Kumara R.K.G.K.	Field Manager
Ms. Aberathne A.H.M.C.D.	Technical Assistant
Mr. Tennakoon A.H.M.A.K.	Technical Assistant

Technical staff attached to Research Programmes

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Mr. Athukorale N.P.	Chief Technical Officer
Mr. Jayaweera D.S.	Chief Technical Officer
Mr. Jayasekara Banda W.G.	Chief Technical Officer
Ms. Karunaratne R.K.C.	Chief Technical Officer
Mr. Pathirana G.P.A.K.	Chief Technical Officer
Ms. Perera R.S.M.	Chief Technical Officer
Ms. Ratnayake R.H.W.M.I.C.	Technical Officer Grade III

Other staff members attached to Research Projects

Mr. Lal M.A.	Laboratory Attendant-Special Grade
Mr. Hapukotowa R.B.	Laboratory Attendant-Special Grade
Ms. Harischandra D.R.T.L.	Lapidarist Gr. III

Office of the Director

Ms. Jeewa Kasthuri M.D.	Senior Personal Secretary to the Director
Ms. Seneviratne O.W.K.	Stenographer Gr. I
Ms. Bandara K.B.J.B.K.	Management Assistant Gr. III (up to 18.04.2022)
Ms. Liyanage D.M.A.D.E.	Management Assistant Gr. III
Mr. Bandara A.G.J. S.	Office Aid Gr. III

Accounts Division

Ms. Samarakkody P.S.S.	Accountant
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Ms. Pamukshi K.G.T.	Management Assistant Gr. III
Mr. Weerasuriya B.J.	Management Assistant Gr. III

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Ms. Illangakoon C.L.S.	Senior Staff Assistant-Stenographer
Mr. Gunathilake D.G.	Record Keeper-Special grade
Mr. Gunathilake A.G.S.T.	Management Assistant Gr. III
Mr. Gunasekara K.G.T.B.	Driver-Special Grade
Mr. Somananda M.A.G.	Driver-Special Grade
Mr. Dissanayake D.M.D.B.	Driver Gr. III
Mr. Jayasinghe H.A.D.N.	Driver Gr. III
Mr. Kumara A.V.A.P.	Machinist-Special Grade
Mr. Udapitiya U.B.R.S.	Machinist Gr. III
Mr. Peiris T.R.	Electrician Gr. III
Mr. Dorakumbura D.G.K.	Mason-Special Grade
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Mr. Wijewardena P.G.N.S.	Primary level-unskilled

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Instrument & Maintenance Division

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Mr. Herath H.M.A.B.	Chief Technical Officer
Mr. Hasun S.M.M.	Primary level-unskilled

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Ms. Chandrakanthi G.W.R.P.	Senior Staff Assistant-Stenographer
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Ms. Wijewickrama T.P.	Senior Staff Assistant-Stenographer

Science Education & Dissemination Unit

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Ms. Samarakoon K.I.K.	Stenographer Gr. I
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Mr. Bandara G.C.K.S.	Technical Officer Gr. III
Ms. Herath H.M.G.N.N.	Management Asst. Gr. III
Mr. Senevirathne M.C.V.B.	Audio Visual Assistant

DIRECTOR

Prof. Saluka R. Kodithuwakku (from 01.05.2022)
Director, National Institute of Fundamental Studies (NIFS)

Prof. Ranjith Premalal De Silva (from 01.05 2021 to 30.04.2022)
Acting Director, National Institute of Fundamental Studies (NIFS)

SECRETARY

Ms. Sagarika D.K. Mediwaka
Secretary/Secretary to the Board of Governors (NIFS)

OFFICE OF THE DIRECTOR

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ACCOUNT DIVISION

From left: Mr. B.J. Weerasooriya, Ms. R.M.V.P. Ratnayaka, Mr. L. Ekanayake, Mr. M.K.D. Keshan, Mrs. P.S.S. Samarakkody (Seated). Ms. M.P.P. Guruge, Ms. M.K. Nissanka, Ms. K.G.T. Pamukshi

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INSTRUMENTS & MAINTENANCE DIVISION

From left: Mr. S.M.M. Hasun, Mr. M.N.B. Kulathunga, Mr. H.M.A.B. Herath

LIBRARY

From left: Mr. D. Bandara, Ms. T.C.P.K. Tilakaratne, Ms. R.M. Witharana

PROCUREMENT & LABORATORY STORES DIVISION

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Ms. H.M.T.L. Sumanarathne

RESEARCH OFFICE

From Left: Ms. T.P. Wijewickrama, Dr. S. Rajakaruna

SCIENCE EDUCATION & DISSEMINATION UNIT

From left: Mr. G.C.K.S. Bandara, Mr. M.C.V.B. Senevirathne, Ms. K.I.K. Samarakoon,
Dr. C.T.K. Tilakaratne, Ms. H.M.G.N.N. Herath

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